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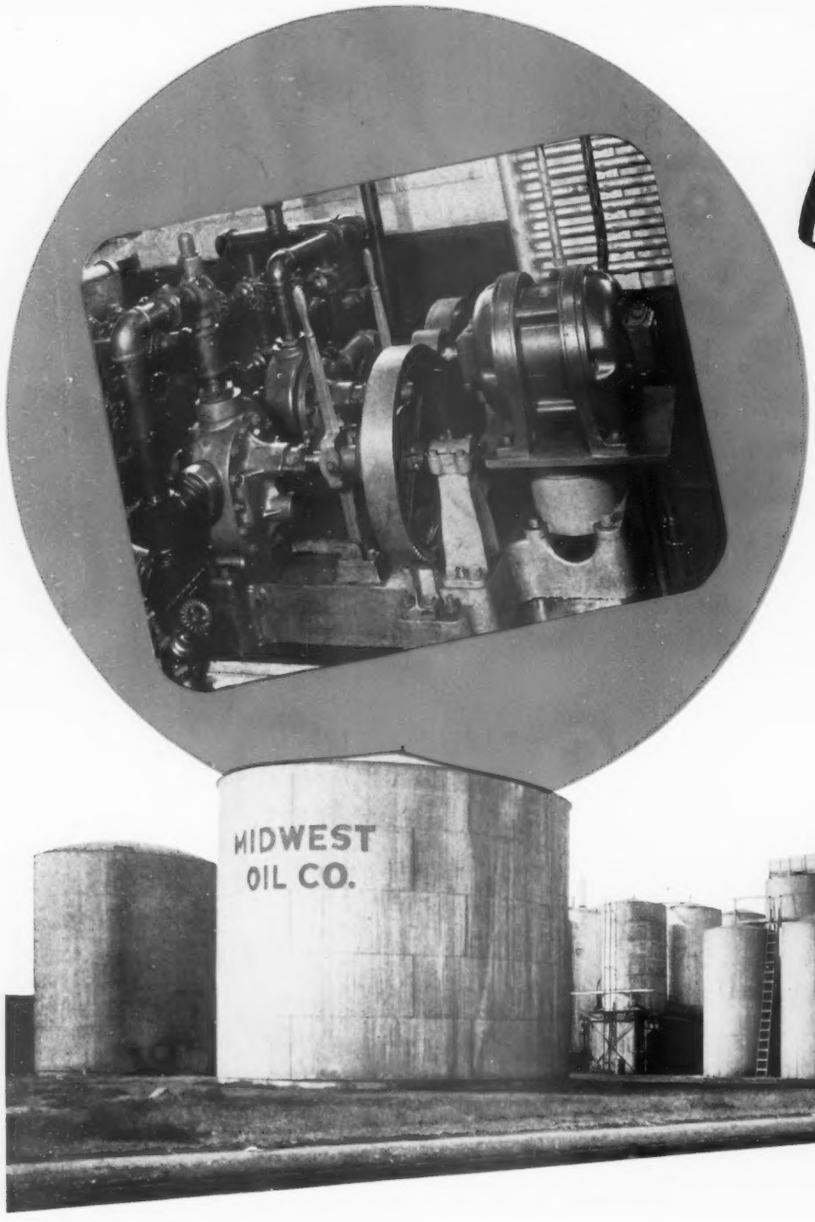
**NOVEMBER 10, 1937**

NATIONAL PETROLEUM NEWS

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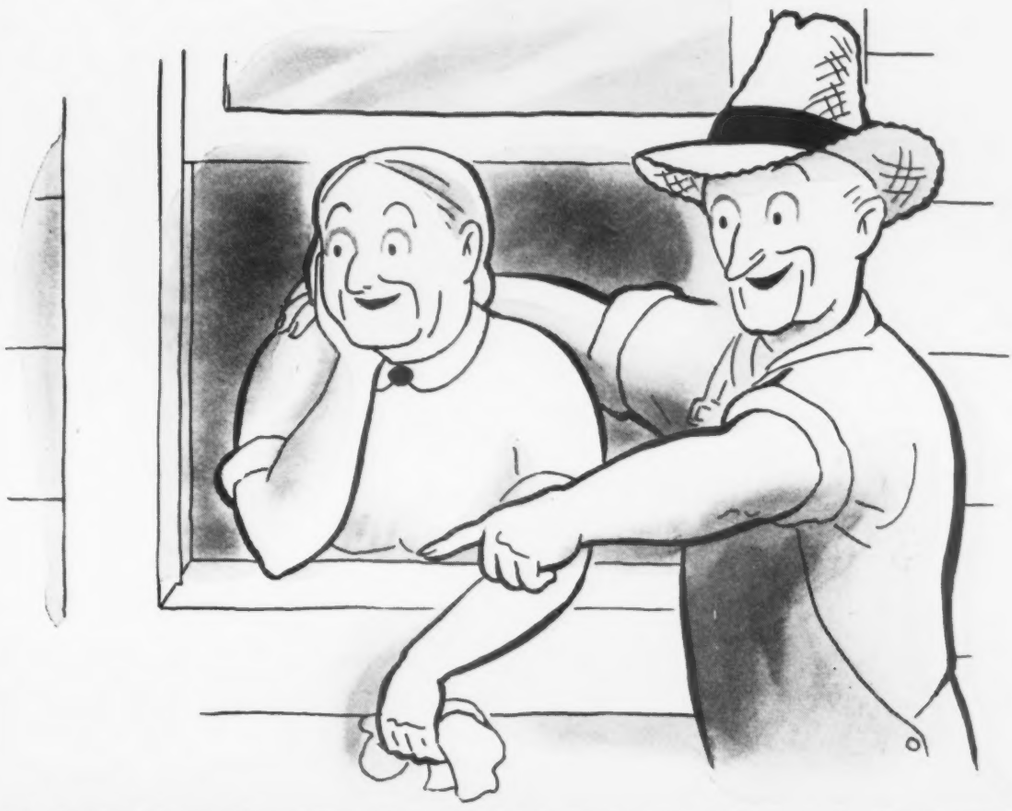

"LAND SAKES! That the new furniture? Bring it right in so's I can see how it looks with that new rug!"

And so it goes, 'way down on the farm—where income is 'way *up*. After dreary years of skimping, farm families are joyfully sprucing up their old homesteads . . . replacing worn-out equipment . . . and buying new cars.

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Now is the time to push *Paramid* oils. For Gulf makes these Mid-Continent neutrals to specifications that are unique in this field. They're solvent-processed pales, de-waxed to low pour test, and of low carbon residue. And make a note of their *high viscosity index*—a feature that brings Paramid oils through with blue ribbon honors!

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GEORGE W. MILLER

George W. Miller, new president of the National Lubricating Grease Institute, organized the American Lubricants Inc., of Buffalo, in 1922 and serves, in the capacity of vice-president, in charge of technical development and production management. His activity in the oil industry started in 1916, when he became assistant chief chemist with an eastern grease manufacturing company and his interest since has been in the specialized field of grease refining and compounding.

LAST MINUTE
OIL NEWS SECTION

News By Teletype From 4 News Bureaus

# National Petroleum News

News From Oil Industry Everywhere

VOLUME 29 WEDNESDAY, NOVEMBER 10, 1937 NUMBER 45

## Fuels Above 100 Octane Predicted At A.P.I. Meeting

*By Teletype*
N. P. N. News Bureau

CHICAGO, Nov. 9.—Sounding an optimistic note, Axtell J. Byles, president, opened the 18th annual meeting of the American Petroleum Institute yesterday with a prediction that gasoline consumption would continue at a high rate in 1938. In review, he said the oil industry had enjoyed a large measure of peace with labor and, speaking somewhat facetiously, that investors in oil companies may be getting dividends that will reach the dizzy heights of three per cent on capital invested in the industry.

Reviews of addresses to be presented at the meeting of the American Petroleum Institute in Chicago, Nov. 8-12, appear on pages 16-18 and 33 of this issue.

This week's activities opened yesterday and continued today with 45 committee meetings. General sessions and group meetings for production and refining will start tomorrow.

### Technical Sessions

This week's meeting will include sessions on the manufacture and use of iso-octane and 100 octane number aviation fuels, and the application of gas polymerization to the problems of refinery economy and motor fuel quality improvement, and the need of the industry to push practical research more intensively and extensively.

Technologists' presentations here this week will include discoveries in the commercial development of processes for the production of high octane fuels. With earning capacities of 100 octane number aviation fuels increased by as much as 48 cents per gallon over 87 octane number fuels, with take-off power increased by 20 per cent or more, and power output increased up to 30 per cent, technologists stated here that fuels will soon go above the 100 octane number mark to reach new efficiencies and place new problems in the hands of the industry's technical leaders.

More than one billion gallons of 95-to-100 octane number fuel can now be produced in this country, it is stated. Iso-octane plant capacity now operating or building can supply all American needs for sometime to come; facilities and processes are at hand for increasing octane number well beyond the 100-mark, and the development of engines to properly utilize such fuels is keeping pace with the fuel-makers, authorities state.

* * *

The Petroleum Equipment Supply Association today elected John M. Crawford, Parkersburg, W. Va., Parkersburg Rig & Reel Co., president, succeeding W. J. Morris, Dallas, Continental Supply Co. John L. Shakely, Tulsa, Frick-Reid Supply Co., was elected vice president, and Wharton Weems, Houston, Texas, attorney, was re-elected secretary-treasurer and attorney.

## *Taxes Down, Sales Up*

BIRMINGHAM, Ala., Nov. 8.—When taxes go up gasoline sales go down, has been the oil industry's contention.

Now comes the Alabama Petroleum Industries Committee, with a report showing tax reductions increase gasoline business from 10.8 to 41.6 per cent.

Six points are included in a report by Earl M. Hearne, secretary of the Alabama committee, where changes were made in the local or county gasoline tax.

Ft. Deposit, 1-cent tax removed, sales up 31.8 per cent.

Demopolis, 2-cent tax cut to 1-cent, sales up 25.9 per cent.

Ozark, 2-cent tax cut to 1-cent, sales up 10.8 per cent.

Talladega, 1-cent tax **increased** to 2 cents, sales **declined** 16.25 per cent.

Jackson county, 3-cent tax removed, sales up 41.6 per cent.

Pickens county, 2-cent tax removed, sales up 34.43 per cent.

# Prosecution Closing Case In Oil Conspiracy Trial

## *Accountants Testify, Then Defense Has Its Innings*

**By G. T. KELLOGG**
**N. P. N. Staff Writer**

*By Teletype*

MADISON, Nov. 9.—Presentation of government evidence in the case charging 46 individual defendants, 23 major oil companies and three trade publications with conspiracy to violate the anti-trust laws moved toward an unexpectedly rapid close during the past week. The government attorneys announced at the close of today's session that their remaining testimony will be confined to presentation of figures tomorrow, Nov. 10, by government accountants and auditors.

First notice that the government was nearing the close of its case was given at the close of testimony Friday, Nov. 5, when government attorney Hammond E. Chaffetz said it hoped to finish with testimony during the coming week (this week).

Figures to be presented by the accountants at the Wednesday session are expected to be directed at showing the effect of the alleged conspiracy on the spot market for gasoline, as reflected by the purchases of the defendant major companies from independent refiners.

### Oilgram Witnesses

Following close of the government's case, motions to instruct the jury to return verdicts of not guilty will undoubtedly be presented by counsel representing the various defendants, some on the ground that no conspiracy has been shown; others on the ground that no connection with any alleged conspiracy has been shown with respect to certain of the defendants.

If the motions are denied, the defense will go ahead with presentation of its case, expected to take another four or five weeks. This may happen even if some motions are granted and others denied. The trial is now in the middle of its sixth week.

Testimony during the past week has been largely from representatives of defendant major companies, with the exception of Wednesday, Nov. 3, and the early part of the following day, when two representatives of *Platt's Oilgram*, one of the defendant publications, were on the stand.

The *Oilgram* men—John Steiger of the Tulsa office and J. P. Mosher, Jr., of the Cleveland office, outlined the operation of their publication to Judge Patrick T. Stone and the jury, explaining how *Oilgram* gathers prices and publishes the various markets for petroleum products.

Most of the major company representatives were questioned about their purchases of gasoline from independent refiners and other sources and, secondly, about the corporate and operating structures of their companies. Officers of these companies are among the individual defendants named in the indictments.

### Talked With Jacobi

Numerous documents said to have been subpoenaed from the files of Shell Petroleum Corp. were read to the jury at intervals during the week, after having been identified by Harry Jacobs, assistant to the marketing vice-president of Shell.

Opening the Nov. 3 sessions, Steiger testified that he talked several times a week with W. Paul Jacobi, Socony-Vacuum tank car buyer, who appeared several weeks ago as a government witness and told about major company buying in the Mid-Continent.

Steiger said that from Jacobi he obtained information about major company purchases and, sometimes, the prices paid, but no details as to how the inter-refinery buying was being conducted.

The *Oilgram* man said he understood "dancing partner" to mean one major company buying more or less regularly from

(*Continued on page* 10)

# *Market Reporter Testifies Nov. 3, 4*

an independent refiner, but that he couldn't single out who he had heard use the term.

From Neil Buckley, Cities Service Export Oil Co., another government witness, Steiger said he had received information about Buckley's purchases in East Texas, and sometimes about other companies' buying.

**700-800 Cars Monthly**

"Quite often several hundred cars a week were purchased in East Texas," Steiger added. He agreed with Lewin that purchases might have run to 700 or 800 cars a month but said that the figure for the Mid-Continent was less.

Lewin asked if the major companies purchased in regular amounts and Steiger replied that the *Oilgram* market leads indicated the amounts varied from week to week.

Replying to Lewin, the witness said that major company buying of surplus gasoline was "one of the factors" steadying the market, adding, "it would take an expert economist to figure out how much effect major company buying had and how much effect other factors had."

Such buying, according to Steiger, diminished the supply of gasoline that otherwise would be sold to jobbers and brokers.

Answering Lewin's question as to whether he had referred to major company buying as a "buying program", Steiger said he couldn't recall labeling it as a "buying program." He started to explain, "in 1934 we had some buying pools and buying programs- - - -", when Lewin broke in.

"I didn't ask you that," the government attorney said, but Judge Stone said the witness ought to explain his answer.

**"Pools and Programs"**

"Back in 1934," Steiger continued, "there were pools and programs, with the resources of the companies pooled together. To my mind that was a pool or program. It was a highly organized sort of thing. In my way of thinking, the line-up in 1935 was different from that. It was looser—more individualized. From that angle, in our mind, it would not be a highly-organized program or pool.

"We repeatedly mentioned it as inter-refinery buying and major company buying," Steiger added. "We told exactly what effect it was having on the market; that it was a factor."

Lewin moved to strike out the witness' answer as being unresponsive.

"That answer was competent and very enlightening to me and to the jury," said the judge in overruling Lewin's motion.

**Talked With Fitzgerald**

Next, Lewin turned to a discussion Steiger allegedly had with Mr. Fitzgerald of Mid-Continent Petroleum Corp. The witness explained that at the end of 1935 he talked with the Mid-Continent official and other refiners gathering material for a year-end resume of marketing conditions for NATIONAL PETROLEUM NEWS.

Steiger said that major company buying and its effect on the market, was discussed but he denied that Fitzgerald had mentioned that independent refiners were "allotted" to the major companies.

Lewin handed up the grand jury testimony and Judge Stone read a series of questions and answers. The jurist said there was "nothing inconsistent."

The government attorney indicated another portion of Steiger's grand jury testimony and the judge read that.

Maurice F. Hanning, attorney for *Platt's Oilgram*, objected that Lewin was "putting words in the witness' mouth."

**"Very Leading Question"**

"It is very apparent that that was done before the grand jury," Judge Stone remarked.

"I submit that it was perfectly proper procedure," Lewin replied.

"It is very apparent," the judge reiterated, "that it was a very leading question, and suggesting the answer you wanted before the grand jury."

Next, the government attorney asked Steiger if "buying program" was mentioned in a talk with Mr. Tuttle of Empire. The witness denied it, and his grand jury testimony, when read, did not refresh his recollection.

Steiger said he talked with Mr. Bacon of Shell about that company's purchases but not about inter-refinery buying in general. As to Pure Oil Co., he said he understood from Mr. Chamberlin that Pure was buying "fairly regularly" from an East Texas refiner but could not recall the latter's name.

**Denies Talks With Kennedy**

When the witness denied that he "talked consistently" with Harry J. Kennedy of Continental, one of the defendants, he was confronted with his grand jury testimony to this effect.

Steiger contended that he must have misunderstood Lewin's question before the grand jury because it was Cunningham, and not Kennedy, with whom he checked at Continental for market information, he said.

William Tracey of Sinclair told him about his own purchases and passed along information on other companies' purchases the Sinclair buyer picked up, Steiger continued. He said he talked less frequently with Mr. Landsittel of Globe than some of the others and got information about Globe's buying but "program" was not mentioned, he added.

**Inter-Refinery Prices**

An argument between opposing counsel broke out when Steiger's grand jury testimony about major company purchase prices "coinciding" with the trend of price quotations in *Oilgram*, was read. The portions read by Judge Stone mentioned a graph.

Lewin contended that he had traced the graph in the air with his finger. Chaffetz, another government attorney, said it was his recollection that the graph used was one published in NATIONAL PETROLEUM NEWS.

"Weren't you convinced," Lewin next asked Steiger, "that inter-refinery sales were included in prices given to you by some independent refiners as sales to jobbers?"

**Sales To Jobbers Only**

"There may have been, but not to my knowledge," the *Oilgram* market checker replied. "I was asking for sales directly to jobbers."

When Steiger's grand jury testimony on this was read, Lewin pointed out that there was an "obvious" mistake in the question asked before the grand jury, but he didn't know whether it was his or the shorthand reporter's. Judge Stone sustained objections.

Lewin next asked if Steiger made an "investigation" to determine if there were two sets of prices in East Texas and received the reply that "I must have, because I knew what the major companies were paying and I knew what the independent refiners were quoting and selling to jobbers."

A few minutes later, Judge Stone told Lewin, "If you want to impeach this witness, go ahead, but if so the grand jury transcript goes into the record."

Lewin insisted that he was merely trying to "refresh" the witness' recollection with the grand jury testimony.

Asked if major companies could be considered as "jobbers" when they bought for resale to dealers, Steiger admitted that strictly speaking this was so, but he pointed out that major company prices were not considered in arriving at gasoline price quotations in *Oilgram*. It is impossible to check on what use the major companies made of gasoline they purchased, he said.

**Platt and Mosher**

At the outset of the afternoon session Nov. 3, Steiger gave a positive "no" in answer to the question whether he had ever discussed the subject of major company buying with W. C. Platt or J. P. Mosher, Jr., (of *Platt's Oilgram*, Cleveland, O.).

Lewin asked Steiger how he accounted for the "fact" that he had testified before the grand jury that he had discussed it with both Platt and Mosher.

"Well, I don't know—if I did, I was wrong," the witness replied.

Hanning jumped up, contending that it was "impeachment".

"If they want to refresh his recollection, all right," the Oilgram attorney insisted. "But this is impeachment and if government counsel keeps on, I will have to ask for the whole grand jury transcript."

Judge Stone remarked that he thought so, too. Lewin dropped the subject, and took up a new line of questioning—about the "highs" of the price quotation ranges in *Oilgram*.

**Denies 'Highs' Quotations Only**

"Do the highs of your prices represent quotations only," Lewin asked.

"No, they represent actual sales to jobbers," Steiger replied, but he could not recall specifically any refiner selling regularly at the *Oilgram* "high".

Lewin questioned Steiger as to records he kept and was told that only memos, pencilled during telephone conversations, were made and that these did not include all the data received because it was "impossible to get down in longhand all that was said, so I had to rely on my memory somewhat."

**Jacobi and Borque**

Replying to Lewin's questions, Steiger said he knew that Jacobi was "working with" A. V. Borque, secretary of the Western Petroleum Refiners Assn., and that he was "under the impression" that McDowell and Tuttle were also.

Steiger said that, in talking with Borque, he was told prices a "bunch of majors" were paying.

Lewin closed his examination of Steiger with another attempt to "refresh" the witness' recollection by having udge Stone

# *Reads Letters from Companies' Files*

read several questions and answers from the grand jury transcript.

To the question whether different prices or the same price was received when he called two or three major company buyers, Steiger's answer, according to the grand jury transcript, was that "almost without exception" they were the same.

On the witness stand, Steiger said he recalled one *Oilgram* market lead which said that several major companies were quoting the same price, but he couldn't recollect anything more about it.

### Steiger Cross-Examined

Steiger's cross - examination was brief. Hanning, attorney for *Oilgram*, brought out that Steiger had followed the "same procedure" in reporting markets in 1935 and 1936, as he was doing at present and had done in prior years.

"And the prices you quoted in your price table were obtained by you as a market checker, obtained when you called refiners selling on the open spot market on sales they made to jobbers," Hanning asked and received an affirmative answer.

Government counsel objected that the question was "leading". Hanning pointed out, "but this is cross-examination."

### "Friendly Witness"

Judge Stone permitted the witness to answer one such question, but the second time he remarked, "It is rather leading; I think I will sustain the objection. This is a friendly witness to you."

Replying to the final question of Hanning, Steiger said, "We include in the price tables of *Oilgram* only sales made directly to jobbers in the open, spot market."

Col. Donovan, oil company defense counsel, had no cross-examination. General S. T. Lawton, attorney for the Chicago Journal of Commerce, questioned Steiger as to when *Oilgram* first published a story about formation of the East Texas Refiners Marketing Assn.

### Stone Questions Steiger

During Lawton's questioning, Judge Stone interposed to ask Steiger if "any of your publications contain any story about activities of the major companies buying in the Oklahoma field?"

"Very frequently, Your Honor," Steiger replied. "We carried a story of that activity several times a week."

Steiger was then excused from the stand and Government Attorney Chaffetz, after an argument at the bench, began reading some more letters and telegrams taken from oil company files.

### More Letters Read

Some of these were weekly market letters from J. W. Warner, Tulsa, of Tide Water, to J. D. Collins at New York. One of these, dated, Jan. 25, 1936, said "inter-refinery buying is being continued in East Texas."

Another letter commented that jobbers were no doubt pleased at a price decline because it was the first time in many months that published prices have been down to a level where the jobbers had their 5.5 cent basic margin "as governed by the generally established service station price throughout Standard of Indiana territory."

There were also a number of telegrams from Sinclair files; those read were mostly reports of purchases in East Texas. One telegram from Tracey to Carnes, dated May 7, 1935, said "Cline reports immediate relief needed 25 to 40 cars East Texas on account few more refineries running. . . "

### Arnott-Carnes Telegram

Another telegram, signed C. E. Arnott and dated April 7, 1935, to Jack Carnes said something about having "reviewed situation with Buckley" and "necessary you, he and I go over program together and do some planning." Mention was also made of a "meeting" at Atlanta, Ga.

A letter, said to be marked "personal and confidential", to D. A. Brown, Root Refining Co., El Dorado, Ark., and signed "W. A. Tracey", was read. It concluded with this paragraph:

"Do not forget that it has taken some intense, active work on the part of all of us to get the U. S. Motor and H-C prices in tank cars where it is today. Jobber demand did not do it. You know, exactly, what I mean."

### Mosher Takes Stand

Next, the government called to the witness stand, J. P. Mosher, Jr., Cleveland, who described himself as holding "a sort of managerial position with *Platt's Oilgram*."

Questioned as to whether W. C. Platt was "actively engaged" in running the *Oilgram* in 1935 and 1936, Mosher replied that Platt was in ill health early in 1935, that he went to Europe around March 1, returning in April, that he was in ill health when he returned and was only at the office a few hours a day at times.

Mosher pointed out also that Platt did considerable traveling during the latter part of 1935 and in 1936, mostly on business for NATIONAL PETROLEUM NEWS.

Even when Platt was in Cleveland, Mosher added, there were times "when I would not see


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# *Market Editor Relates Oilgram Policy*

him for a week or ten days—sometimes two weeks."

He said that Platt was responsible for *Oilgram* policies.

When Platt is away, the "managerial work" was distributed around, with V. B. Guthrie, managing editor of NATIONAL PETROLEUM NEWS, performing a similar function for the daily publication.

Mosher testified that the volume of gasoline moving on the spot market has been getting thinner and thinner but that he could give only a "guess" as to what it actually was. At this point a recess was called until Nov. 4, with Mosher still on the stand.

Mosher again took the stand as court convened for the morning session Nov. 4, and was questioned at the outset by Lewin as to what "authority" was given market checkers in *Oilgram's* branch offices—that is, what specific instructions as to how to check the markets.

"We have confidence in the ability and integrity of our men in the branch offices," Mosher told him, adding that no specific instructions were given. Then Chaffetz asked if Steiger had been given authority to consider quotations as well as actual sales in arriving at his daily markets for gasoline.

Such specific authority was not given, Mosher said, but if thinness of the spot market in 1935 and 1936 made it necessary to use quotations as well as actual sales, then Steiger's judgment was relied on as an interpreter of the market, he said.

Taking up the thinness of the market, Lewin wanted to know how much gasoline refined from Mid-Continent crude was sold on the spot market to jobbers. Mosher said he had no idea, and any figure he would give would have to be a guess. He then described a conversation he had had with Chaffetz during the grand jury sessions at Madison, but outside the grand jury room.

**Questioned on Supervision**

He said he thought he told Chaffetz at that time that about 5 to 10 per cent of the gasoline from such crude was sold to jobbers on the spot market, but that it was only a guess.

Then the government counsel wanted to know if Mosher knew the use to which these markets, quoted in *Oilgram*, were being put, and Mosher said he understood they were being used as a basis for contracts between jobbers and their suppliers.

Mosher was asked repeatedly if he either "supervised" Steiger in his collection of the market reports or reported to W. C. Platt on the markets as he received them from Steiger or other branch office checkers. He answered in the negative each time, although he said that if there was something unusual in the market he may have talked to Platt about it.

Mosher said, in response to questions, that he thought Steiger had been checking several major company officials in the Mid-Continent area in arriving at his daily markets, since some of the officials, who are also defendants, were among the known sources of information.

He also said he knew that major companies were buying gasoline in East Texas and the Mid-Continent beginning in February and March, 1935, but that they had been buying before this, too, possibly not so heavily however.

Asked how he heard about this major buying, Mosher said he learned it through "market leads" sent to *Oilgram* and NATIONAL PETROLEUM NEWS from the Tulsa office. These leads, which were in reality news stories about the buying, were carried in the publications, he said.

During the morning recess government counsel took Mosher into an adjoining room to read to him his grand jury testimony in an effort to refresh his memory on certain points. When court reconvened Lewin announced he had no more questions.

Hanning cross examined Mosher, bringing out the methods *Oilgram* uses in gathering its news, including the mechanical working of the teletype machines in each branch office, and also brought out that Mosher had many duties in the Cleveland *Oilgram* office besides handling market and news copy for *Oilgram*, as an editor.

**Tide Water Man on Stand**

Harold F. Parsons, East Orange, N. J., assistant to the vice-president of Tide Water Associated Oil Co., was first witness at the afternoon session Nov. 4. Parsons said his company and its predecessors had purchased gasoline on the Gulf Coast and in East Texas in 1935 and 1936 "because we needed the gasoline to supplement our own supply."

Questioned by Chaffetz if they did not buy also through "a desire to support the buying movement going on in East Texas in which major companies principally participated," Parsons reiterated that they needed the gasoline, and believed it a good idea to take it from East Texas to help stabilize the market.

He also pointed out that purchases of gasoline from refiners in 1935 and 1936 were less than in previous years, diminishing as Tide Water's own production increased. This was during cross examination by B. M. Webster, Tide Water counsel, and Col. Donovan.

**Documents Introduced**

Harry Jacobs, assistant to the marketing vice president of Shell Petroleum Corp., was called to the stand following Parsons, but did not testify except to identify numerous documents—letters, telegrams, memos and "price reviews"—from the files of the Shell Corp.

Some of this evidence was introduced against the Shell defendants only, and much of it as "against such defendants as the record will show have been connected up with the alleged conspiracy so far."

Jacobs was recalled to the stand the morning of Nov. 5, to identify some more documents, but was excused after less than an hour, whereupon Chaffetz began reading the identified documents to the jury.

One memo read to the jury, described as from A. P. Reuther, head of Shell's crude oil department to Alexander Fraser, president, reported that "Bourque advises that a meeting held in Chicago last week considered getting into a buying program." This was dated Jan. 11, 1935. Some time later, according to a memo of the same sort read to the jury, Reuther reported that "a buying movement has been started," and cited purchases made by major companies from refiners.

Numerous weekly "price reviews" prepared by Jacobs or others in his office for Shell officials were read to the jury, writen during the early part of 1935, and telling of a "strong market," a scarcity of surplus gasoline in the Mid-Continent and East Texas areas, and mentioning activities of a "buying group," always in quotation marks.

In one of the reviews, signed by P. E. Lakin, Jacobs' superior, it was pointed out that "jobbers have been filling their storage in anticipation of the rising price, and this, coupled with the buying program, has removed most of the surplus in East Texas."

Activities of the Federal Tender Board in East Texas also were credited with aiding in removal of the surplus gasoline from the market.

**Witness Is Recalled**

When Chaffetz stopped reading the documents, Oscar L. Peterson, of George C. Peterson Co., Chicago jobbers and brokers, who testified Oct. 14, was recalled to the stand for cross

(*Continued on page* 19)


## IN THE NEXT ISSUE OF N.P.N.

### Holiday Trade for Stations

• Automotive accessories of the luxury type are with us again, many of them electrical "gadgets" of one kind or another, and most appealing to a male motorist, particularly. Service stations carrying selected lines of accessories have dressed up their offerings before for the Christmas trade; more will do so this year. The Nov. 17th issue of N.P.N. will offer some practical suggestions along this line.

### Oil's Markets In The Depression

• Most people in the oil marketing business realized that gasoline consumption was not reduced—in fact was hardly checked—in the years following 1929. However, many persons do not yet appreciate that 1929 was just a good starting point for the gasoline business and other oil products as well. This subject is graphically illustrated in the Nov. 17th issue.

### Complete Report on A.P.I. at Chicago

• Supplementing the news reports in this issue, sent in by its staff writers from the annual convention of the American Petroleum Institute, special articles will be continued next week covering the highlights of addresses given, discussion at sessions, reports from technical committees, resolutions and so on.

# Pa. Grade Assn. Research Study To Be Expanded

By ARCH L. FOSTER
Technical Editor

OIL CITY, Pa., Nov. 8.—An ambitious extension of the research program of the Pennsylvania Grade Crude Oil Assn. is under way at State College, J. E. Moorhead, executive secretary of the association announces. This program has been under way at the association's State College laboratories for several years, and the results obtained so far have been momentous in a number of important developments.

Five or more chemists and chemical engineers will be added to the present staff, under the direction of Dr. M. R. Fenske. Its efforts will largely be concentrated on the study of oxidation characteristics of petroleum lubricating oils.

"While the association feels that Pennsylvania oils react favorably to the phenomenon of oxidation in motors," Moorhead says, "it can be expected that service severity on oils will be increased as higher power output is developed in new engines." The laboratories at State College are already equipped and manned to carry on a far-reaching research program on this subject, association officials state.

### Continuing Program

This new program may continue for two or three years or more, plans being not to limit it as to time. The association's Technical Committee will be in constant touch with the progress of the work, and developments will be made known to Pennsylvania refiners from time to time, Secretary Moorhead stated. Characteristic of the work of the laboratories under Dr. Fenske, the research will be fundamental in nature. The basis of the study will doubtless be the oxidation reactions of narrow fractions of Pennsylvania lubricating oils under a variety of conditions. It is hoped in time to determine a great deal more of the fundamental properties of lubricants, Moorhead pointed out.

In production research, the appropriation will be doubled for the further investigation of air-gas repressuring methods. This system is stated to be especially applicable to areas south of the Bradford fields. This work will include comparative efficiency studies of air and gas as repressuring media; studies of permeability, pressures, and other factors based on the laws of fluid flow when applied to micro-channels in strata.

### Water Flooding

The appropriation for study of water flooding will also be increased somewhat, a study financed heretofore mainly by contributions of a group of progressive producers in McKean county, according to the secretary. This group now have seven engineers and physicists working on water flooding problems in the School of Mineral Industries. Another research program is being developed and plans on this will be finally determined by the end of 1937, Moorhead stated.

# Nine Months Net Tops All of 1936

N. P. N. News Bureau

CLEVELAND, Nov. 8.—Nine months net earnings of the Ohio Oil Co. were $10,315,011, as compared with $6,212,981 for nine months of 1936, or at the rate of $1.20 per share of common stock, as against 57 cents a year ago.

Net earnings for the nine months of 1937 were considerably higher than the total net earnings for 1936 of $7,881,571. The company is operating at its best level since 1929.

Gross sales were $48,433,758 for the nine months ending Sept. 30, as compared with $39,315,034 a year ago. Operating expenses, at $28,170,570 for the nine months of this year, were only moderately higher than the $25,242,552 for this item for the same period last year.

The profit figure for nine months, after ordinary taxes, but before depreciation, depletion, federal income and other taxes, was $18,377,547, as compared with $12,547,761 for nine months last year. The amount carried to surplus for nine months of this year was $4,566,976, as compared with $2,105,790 last year.

For the quarter ended Sept. 30, the indicated net profit (based on a comparison of company's reports for the six and nine months periods) was $3,592,654, equal to 42 cents a common share, comparing with $3,250,728, or 37 cents a common share, in the preceding quarter and $1,736,417, or 14 cents a common share, in the September quarter of the previous year.

Current assets as of Sept. 30, including $11,670,144 cash, marketable bonds, after reserve and short term notes, amounted to $39,041,532 and current liabilities were $5,911,286. This compares with cash and marketable bonds of $7,931,905, current assets of $37,254,600 and current liabilities of $4,599,090 on Sept. 30, 1936. Inventories of crude and refined oil were $18,773,234 against $19,113,667.

# Net Earnings Up 12% For 9 Months

N. P. N. News Bureau

TULSA, Nov. 6.—Net profits of Mid-Continent Petroleum Corp. and subsidiary companies for the nine months ended Sept. 30, after provision for federal and state income taxes, but before any deduction for surtax on undistributed profits, were $4,605,879.52, equivalent to approximately $2.48 per share on 1,857,912 shares of outstanding stock.

For the same period in 1936, net profits were $4,198,678.30, equivalent to $2.26 per share on 1,855,912 shares of outstanding stock.

Gross sales for the nine-months period were $32,121,717.89, as compared with $30,124,996.34 for the same period in 1936. Gross profits from sales were $12,140,228.51, as compared with $10,980,259.12 for nine months in 1936. Net profit from sales was $7,546,089.50, as compared with $6,725,208.59 and net income before deductions was $8,797,044.56, as compared with $7,824,365.76 for nine months in 1936.

Net profits of the company for the third quarter, after provision for federal and state income taxes, but before any deduction for surtax on undistributed profits, were $1,512,118.63, equivalent to approximately 82 cents per share. For the same period in 1936, net profits were $1,784,410.65, equivalent to 96 cents per share.

Current assets Sept. 30, were $24,116,277.94, of which $8,737,143.35 was in cash and short term U. S. Treasury Notes, and current liabilities $3,696,614.38 Dec. 31, 1936, current assets were $21,244,717.07 and current liabilities $3,472,883.61.

On Oct. 28, directors declared a dividend of $1 per share, payable Dec. 1, to stockholders of record Nov. 30, making total dividends for the year $1.50 per share.

A lubricating pit 60 feet long has been installed in a Pacific Coast service station, so that operators can lubricate three motor cars or trucks simultaneously.

# S. O. Cal. Profit Tops Since 1929

N. P. N. News Bureau

LOS ANGELES, Nov. 6. — Christmas stockings of Standard Oil Co., of California stockholders will be richer by 80 cents a share, as a result of action by the company's board of directors Nov. 3.

Better earnings for third quarter operations encouraged the directors to declare an extra dividend of 55 cents a share, in addition to the regular quarterly dividend of 25 cents a share. Both disbursements will be payable Dec. 15 to stock of record Nov. 15.

This payment raises the total for the year to $2 per share, as compared with $1.20 paid in 1936, and is the first year since 1932 that the company has distributed as much as $2 a share.

Net profit for the three months ended Sept. 30, 1937, reached the highest level for any quarter since the corresponding three months in 1929 and totaled $13,355,627, after all charges, including normal federal income tax provisions, equal to $1.02 a share on 13,102,754 shares of capital stock outstanding.

This compares with $7,685,528 in net profits realized in the comparable 1936 quarter, and equal to 58 cents a share.

Total net profits for the first nine months of 1937 were $31,135,817 after all charges and normal taxes, equal to $2.38 a share and comparable to $16,655,074, or $1.27 a share, in the first three quarters of 1936.

## *Named Advertising Manager for Sohio*

CLEVELAND, Nov. 7.—Appointment of John Wieland as advertising manager of Standard Oil Co. of Ohio is announced by J. J. Adams, merchandising manager, who directs the company's sales and promotional program.

Wieland is a native of Toledo and graduated from Oberlin College in 1929 and from the law school of Western Reserve University in 1932. He joined the Standard Oil organization as executive secretary to W. T. Holliday, president, in 1932, spent several intervals in service station and bulk station work, and for the past year has been in charge of industrial relations in the manufacturing department.

# National Petroleum News

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**Published every Wednesday by The National Petroleum Publishing Co.**

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V. B. Guthrie, *Managing Editor*
A. E. Waldorf, *Advertising Manager*

FOUNDED 1909
*Member of Audit Bureau of Circulation and Associated Business Papers, Inc.*

Publication office: 1213 W. Third Street, Cleveland, O.
Telephone, CHerry 7672 Cable Address, Plattoil, Cleveland

NEWS BUREAUS

**New York,** 50 W. 50th Street, Telephone, COlumbus 5-1516 and 5-1517.
**Chicago,** Buckingham Bldg., 59 E. Van Buren Street, Telephone, Harrison 5901-2-3.
**Washington, D. C.,** 1002 National Press Bldg., Telephone, NAtional 0654.
**Tulsa, Okla.,** 904 World Bldg., Telephone, 3-7132.
**Los Angeles,** 610-A Hillstreet Bldg., 815 South Hill Street, Telephone VAndike 2845.
**Madison, Wis.,** 29 West Main St., Telephone, Gifford 1313.

Subscription rate $2 per year in United States and Mexico; $3 in Canada; $3.50 Foreign Countries. Current copies 10 cents; back copies more than two months old 20 cents per copy.


## *"Main Street", Auto Frames, Pipe "And The Pursuit of Happiness"*

By WARREN C. PLATT, Editor

MADISON, Wis., Nov. 8. — "Tonight, in Alabama, a cotton planter will go to bed quite unaware that he has helped to build an automobile."

Tomorrow he will take that automobile, that he did not know he built, down to the filling station for "gas" and oil that was produced from the property of a brother farmer in far-off Texas or Oklahoma — produced with the aid of pumps and engines made on the Wisconsin shore of Lake Michigan just east of here, and transported through a welded pipeline to high compression chambers at refineries, with possibly both pipe and chambers also made here in Wisconsin. And the chances are that the frame of that automobile built and bought by the Alabama planter was also made by the same Wisconsin people who are making it possible to produce and refine oil cheaper.

All of which is indicative of the interdependence of business and yet how many thousands of miles away from that automobile that he helped build is that Alabama cotton planter?

And how many thousands of miles away from that cotton planter are we here in Madison, Wis. or wherever you, the reader, are in these United States?

And now, to get our little story with a moral together, the lines about the Alabama cotton planter were published in advertisements all over the country by General Motors, advertisements of "Main Street U.S.A." The possibility that the frame of the automobile the cotton planter built came from Wisconsin and the rest of it about welded pipe, combustion chambers, etc., is suggested by an advertisement of the A. O. Smith Corp. of Milwaukee.

Both advertisements were published in the past week. The occasion is the introduction of new automobile models. The purpose is to improve public understanding of industry, "And the Pursuit of Happiness", to borrow the heading of the Smith "ad."

General Motors in its "Main Street" advertisement, seeks to bring home the fact that 38 cities are producing its parts and cars. It says that, in recent years, it has been decentralizing manufacturing, to create more jobs and to get lower living costs for its workers.

These 38 General Motor cities are not all the many places from which it draws raw materials, such as the product of the Alabama cotton planter. Painting a bit more of that raw material picture, General Motors says,

"A silver miner in Colorado, a cattle rancher in Wyoming, a sugar cane planter in Florida, a machine tool maker in Connecticut, will go about their daily lives feeling no part, perhaps, in the enterprise which is General Motors."

No, they don't feel any part, Mr. General Motors and more is the pity of it, because you and all the rest of industry — big and little — have been building higher and higher wire fences, with sharper and longer barbs, around your businesses, to keep out your public — the man who works in the adjoining industry next door.

We wonder how much the public in Wisconsin, for illustration, knows about what its industries contribute to your automobile company, Mr. General Motors and your great industry? We wonder if this Wisconsin public — and this question can be asked of any other state — realizes how much this state has contributed also to the efficiency and low cost of producing, transporting and manufacturing the very gasoline that runs its automobiles, the same cars to which the Alabama cotton planter contributes?

Some of the best engineering for oil industry efficiency has been done right here in Wisconsin and with Wisconsin money and by Wisconsin men. A large quantity of the most important oil field and refinery and marketing equipment is made here in Wisconsin. A large number of the many, many millions of dollars that the oil industry has paid for this excellent equipment must have flowed back across this state, north and west through Madison, to every town and every farm.

Yet how many Wisconsin citizens realize what they have contributed to this oil industry and what they have drawn from it, as well as what they have given to and received from the automobile industry?

But American industry is on the march to clearer days of industrial understanding. General Motors has discovered that Alabama cotton planter who helps make automobiles. The A. O. Smith Corp., over at Milwaukee, has sought out the great American family. To it, in the last TIME magazine, the Smith Corp. addresses a eulogy of the automobile industry and imparts the information that Smith is contributing an auto frame every six seconds.

But Smith does not show a picture of that immense, uncanny but marvelous machine whose scores of claws look like a thousand lobsters pushing up out of a box which toss out these car frames at such a rate. Smith, in its advertisement, goes straight to the romance of America, its men and its business. Across the top of its advertisement, in the brilliant colors of autumn it pictures the typical American family that has just left its "Home Address: MAIN STREET, U.S.A.", as described in the advertisement of General Motors and, in a new car, is sailing down a winding mountain road "in The Pursuit of Happiness."

It is the "Main Street" viewpoint that dedicates American business to that fundamental of our Declaration of Independence, "the pursuit of happiness."

# Conservation Another Matter If You Are Owner Of Oil Well

*(A Letter to the Editor from Ellick Botts, consulting pumper, Gray Horse, Okla.)*

GRAY HORSE, Okla.

**To the Editor:**

From some communications which you have printed recently in your paper I get the idea that some of the gents in this industry do not think much of conservation, proration and other matters which are held in considerable esteem by other parties who produce oil. I refer especially to a speech made by Mr. Schock, of Mt. Joy, Pa., who deplored with some fervor the whole program now being followed by the state authorities out in this part of the U. S.

I will not debate the questions raised by Mr. Schock but merely point out that his entry into the controversy is belated. The controversy, in fact, is ended as to the major point of whether we should have state regulation or not and about all we squabble over now is whether one field is being given a better break than another, which argument in Texas is always ended by cutting some more off the Yates field.

There was a time when your correspondent felt as Mr. Schock does but that was back in the days when I had a flowing well on my lease near Gray Horse and didn't want it disturbed. Now that all my wells are small pumpers, I am highly in favor of proration because, otherwise, the pipelines would be too busy running the oil from flush fields to pay any attention to my biweekly 50 barrels, which is my maximum and is reached only in summer time when thermal expansion is showing up on the run tickets.

In general, we have resigned curselves to the facts and have agreed that the program followed has been a fairly good one. It wasn't always thus. Many and many a brawl in Oklahoma City and Austin over this proration business would have commanded $50 per seat if staged in the Rose Bowl. On almost any clear day with the wind in the right direction you would hear a terrific uproar when you came within a hundred miles of either town and you knew that the boys were in there conserving the natural resources. Why, I remember one day years ago when Charlie Peppers of the Champlin Refining Co. let loose with a blast that was picked up by a seismograph party in south Texas and a "high" was mapped which the Humble drilled, thus discovering the Anahuac field.

Well, we have progressed greatly since that time. We now line up with the regulatory commissions and take a passionate interest in the elections each time there is a place to be filled. It formerly was the custom to let such things as political faith, religion and lodge membership enter into our decisions in voting for candidates and we still do as to most offices, but not so when it comes to choosing a member of the Railroad or Corporation commission. You hear remarks like this:

"Think I'll vote for Col. Twirp for commissioner. Don't you think he is the logical choice?"

"Well, I don't know. He doesn't seem sound on gas-oil ratios."

"I admit that, but look what he did on bottom hole pressures. You remember what a demoralized condition they were in when he was elected the first time. Why, we scarcely had any at all. He has brought the state up to first place and, furthermore, he has made the people bottom-hole pressure minded."

"Oh, there's a lot in what you say, but I like the new theory which Judge Jerk is advocating. He contends that gas-oil ratios run transversely to the strike of the structure, provided, of course, that the closure is not of the graben type. I'd like to see him have the chance to inject that question into a statewide hearing, so I think he gets my vote."

So, Mr. Editor, these arguments over what should be done about oil and its conservation are about the same as those pertaining to other things. The basis of the oil business is that lease which the operator signs with the landowner and the lessor still has the title to whatever is under his land. People who have no oil may not like it but there is not much that can be done about it except see that it isn't wasted, which is what these state commissions are attempting to do.

In this part of the country we use a great deal of a medicinal preparation made somewhere in the East. It is good for the swamp ague, the shakes and has a soothing effect in the event of snakebite, containing as it does about 50 per cent alcohol. The rare herbs which are used in compounding this universal specific are not raised in this region and we are unfortunate in that respect, as the price is a dollar a bottle, but we have not yet suggested that the government seize these herbs for the common good.

I was talking to my friend J. Lester Spaniel, president of the Under Dog Puppy Food Co. the other day and he was sounding off at a great rate about asking for federal intervention for his business. He said that, when he located his factory, the dog population was fixed and stationary but that since people started traveling aroud in trailers he never knows how to plot his future production curve. He thought there should be a law, something like the Connally act, about taking dogs across state lines, thus keeping his customers at home.

But as these are not "hot" dogs that he is worrying about, I told him I doubted that a federal question could be raised.

**Very truly yours,**
**Ellick Botts, Consulting Pumper and Part-time Conservationist**

# Find Tank Truck Safety An Issue

CLEVELAND, Nov. 7.—"One of the most troublesome problems now confronting fire protection authorities is that of the gasoline tank truck", states an editorial in the October issue of the Quarterly of the National Fire Protection Assn.

The accusation is directed toward sub-standard equipment operated by irresponsible individuals in the gasoline transportation business. Large oil companies, it finds, appreciate the importance of fire safety measures and have a relatively favorable fire record.

The situation is said to have been particularly acute in some of the middle western states. It is stated that fire chiefs and other local and state authorities are studying the problem. The N.F.P.A. Committee on Truck Transportation also has the matter in hand and is expected to evolve some satisfactory solution which will be reported at the next annual meeting next May, it is said.

## *Ordinance Regulating Trailers Opposed*

N. P. N. News Bureau

LOS ANGELES, Nov. 6—A proposal by the Los Angeles city council to regulate auto trailers and trailer camps met with instant and vigorous opposition last week when some 500 trailerites and friends thronged council chambers to protest that such action would send the trailer tourist to Florida and elsewhere.

City health officials said an ordinance was needed to protect the health of the occupants, as well as that of the permanent residents of the city.

Considered particularly objectionable to house trailer advocates was a section of the proposed regulatory ordinance which would require that trailers conform to regulations of the state Housing act after 60 days or move on.

Purpose of such a law was declared necessary to prevent the conversion of trailers into permanent residences. It was proposed that a $5 fee be levied after the 60-day period. Two amendments which would have extended the free period of stay to 90 and 180 days, respectively, were offered but failed to find approval. Final action on the measure was deferred until Nov. 9.

## *Arizona To Collect Tax On Diesel Fuel*

LOS ANGELES, Nov. 6. — Arizona state officials have initiated a drive to collect taxes on diesel and stove oils used for motor vehicle fuel. The state has a 5-cent per gallon levy on these oils where used as vehicle fuel but in the past made little effort to collect the tax on the small quantity used for this purpose.

However, Vernon G. Davis, superintendent of the Arizona motor vehicle division of the state highway department, has issued notice to all oil dealers in the state to the effect; "Hereafter a 5-cent per gallon license tax must be collected from the user by the seller and remitted to the motor vehicle division to cover all such products sold for use in motor vehicles."

### New Gasoline Plant

TULSA, Nov. 6. — Barnsdall Oil Co. is building a natural gasoline plant in the Foster pool, near Odessa, Texas. Contract was let to Petroleum Engineering, Inc., Tulsa. The plant will be of the combination compression-absorption type and will process about 12 million cubic feet of gas daily. It is expected to be put into operation early in January. Total cost will be around $350,000.

# *Better Balance of Gasoline and Distillate Output In Winter Is Urged by A.P.I. Head*

N. P. N. News Bureau

CHICAGO, Nov. 9.—That the refining industry in this country consider immediately cutting deeper into heavy fuel oils in its plant operations, and thereby increasing its production of distillates for heating and reducing its manufacture of gasoline by about the same amount, was suggested in the address of Axtell J. Byles, president of the American Petroleum Institute, to be presented before the institute's convention here Nov. 10. This was suggested as a six months program for the industry.

President Byles stated he realized such an operating program would be of economic assistance to the coal industry; but he inferred it might be preferable to a "penalty" tax on heating oil to aid the coal industry, which would be "unfair to the consumer of that product and justly arouse his indignant opposition."

Citing figures as to gasoline stocks in late fall and early spring of past years President Byles said that, if the refining industry this winter fails to handle its runs to stills in such manner as to meet the heating oil demand without glutting the gasoline market, gasoline inventories next spring might be well above the 80,000,000 barrels it is now estimated will be necessary then to meet minimum requirements.

To bring the industry into a relatively satisfactory gasoline inventory situation next spring, economically speaking, Byles recommended the following:

### Reduce Crude Output

1—An average daily crude oil production of 3,500,000 barrels daily for six months commencing Oct. 1, in the country as a whole. Crude output is now running better than 3,600,000 barrels daily.

2—A decrease, in the area east of California, of one half of one per cent in the gasoline yields established last winter and an increase of the same per cent in distillate yields during the same period.

"If we translate our present excess gasoline stocks back into crude oil," stated Byles, "our inventories of the latter commodity on Oct. 1 would have read 327,000,000 barrels, instead of 310,000,000 barrels, as compared with 228,000,000 barrels on Jan. 1, last."

He also brought out that, for many months, the oil industry has been exporting both as crude oil and refined products more than 100,000 barrels a day above normal requirements.

"This is undoubtedly due to so-called undeclared wars and to fear of wars," he stated. "The size or duration of this market is unpredictable."

President Byles' review of the economic and inventory situation in the oil industry as of Sept. 30 was as follows:

"On Sept. 30, 1936, there were 57,800,000 barrels of gasoline in storage which included a surplus of possibly three to five million barrels. On March 31, 1937, stocks totaled 61,651,000 barrels.

Calculations, based upon the anticipated demand for motor fuel during the year which ended Sept. 30 last, and which since have proved substantially correct, indicated minimum requirements at the end of March of this year to have been 74,000,000 barrels, and at the end of September 57,000,000 barrels. When the final figures are in, they will probably show that about 65,000,000 barrels were in storage on Sept. 30, last.

"It would, therefore, appear that whatever surplus actually existed on Sept. 30, 1936, was added during the winter of 1936-37 and that very little, if any, progress was made toward its liquidation during the summer just closed.

Calculations recently made of the estimated economic demand for motor fuel in 1938 show minimum requirements of gasoline inventories as of March 31 next to be approximately 80,000,000 barrels. Should a major business recession during 1938 occur, this inventory would be too high.

During the winter season of 1935-1936 more than 23,000,000 barrels of gasoline were added to storage, and during last winter the additions amounted to about 24,000,000 barrels. Should the coming winter prove unusually severe, the economic gasoline situation next spring will not be comfortable if overproduction of crude oil presses on the refiner during the winter and if the refining branch of the industry fails to handle runs to stills in such a way as to meet the heating-oil demand without glutting the gasoline market.

"Economically it would appear that an average daily crude-oil production of 3,500,000 barrels, in the country as a whole, for the six months commencing Oct. 1 last, a decrease, in the area east of California, of one-half of one per cent in the gasoline yields established last winter, and an increase of the same per cent in the distillate yields established during that period would bring the industry, economically speaking, into a relatively satisfactory gasoline inventory situation on March 31 next."

Commenting on the growth of the so-called "Iowa Plan," or dealer market plan in gasoline retailing, Byles stated that the manufacturing companies have largely withdrawn from retail marketing, due to "the abuses of the fixed-margin or guaranteed-profit system in the marketing of gasoline, the imposition of chain store taxes and other burdensome legislation."

"This branch of the business, therefore," he said "is going through a period of transition which should eventually put it on the same basis as any other merchandising operation." Commenting further on this subject in his address, Byles said:

### Transition in Marketing

"Probably over 80 per cent of petroleum products are sold by independent merchants. It is hoped and believed that the vast majority of these merchants, who conduct their operations in a businesslike way and for whose facilities there is a public demand, are as prosperous as the good merchandiser in any other line of business. I believe that the millions of motorists who enjoy the remarkable service rendered by the distributors of petroleum products concur in the opinion that these merchants deserve to be successful.

"Current events, however, indicate that a small minority who for one reason or another are unsuccessful or dissatisfied have turned not only upon their suppliers but are appealing to the government for laws or regulations which they believe will improve their situation, saying—'There ought to be regulation' instead of, as in the old days—'There ought to be a law' having recognized, through bitter experience, that just the enactment of a law and yet another law will not help the situation but believing that, if some governmental agency is given the power of regulation and yet more regulation, the millenium will be achieved.

"It is noteworthy that suggestions for governmental regulation do not come from the consumers of petroleum products and, in view of the prices they are paying and the service received, this is quite understandable.

"These suggestions range all the way from state licensing of filling stations, compulsory price-posting and minimum price maintenance to the disintegration of operating companies, the striking down of the state and federal petroleum conservation laws and the abolishment of the statistical service rendered by the Bureau of Mines.

"The industry has periodically been investigated by Congressional committees. The last of these was by the Cole Committee and was very constructive by reason of the character and

### Wage Trend Compared With Gasoline Prices

N. P. N. News Bureau

CHICAGO, Nov. 9.—The trend of wages in the oil industry, as compared with the price charged for gasoline, its principal product, was brought out in the address of President Axtell J. Byles, of the American Petroleum Institute, to be presented before the institute convention here Nov. 10. He said:

"A comparison of the average hourly wages paid by an efficient refinery of fair size in 1920 with those paid in 1937, expressed in terms of gasoline purchasing power (not including the tax) shows that the refinery worker could buy in 1920 slightly over 2 gallons of gasoline with an hour's wage, while in 1937 he is able to purchase about 6½ gallons of gasoline with his hour's wage.

"It is my belief that this ratio prevails in approximately three-quarters of the refining capacity of the country. This furnishes not only an interesting illustration of the distribution of wealth by the petroleum industry, but also illustrates the trend of wages paid by the industry in comparison with the price charged for its principal product."

caliber of its members, the thoroughness and impartiality of its work, and the co-operation of all branches and interests in the industry.

"Other investigators, both state and federal, might study the three thousand pages of testimony taken, over a period of six months, by the Cole Committee, thus saving considerable of their time, large public expense, and permitting the industry to devote more of its time and energy to the business of serving the public.

**Face State Investigations**

"We are now facing what may prove to be a series of investigations by state authorities. It is well to bear in mind that these investigations do not just happen. They frequently result from the complaint of someone who feels aggrieved. The industry should prepare for these inquiries in the same co-operative spirit and with the same frankness and thoroughness with which it met the Cole Committee. It has nothing to conceal, and may get a substantial return through this means of informing the public, as well as the state authorities, of the operations of this business concerning which the public is too little informed and far too much misinformed.

"We will not here review the necessity of the conservation laws for the protection of the public interest, but we might inquire, for example, how those who have had to obtain permits for the erection of service stations would like to be compelled to obtain licenses to do business at all? As to who would grant or refuse or revoke such licenses, and for what reasons? What governmental authority would be vested with the power to determine minimum price-posting, and how such minimum prices would be arrived at under different and ever-varying conditions?

"How could adherence to compulsory minimum price-posting be enforced, and how many governmental employes would be added to the payrolls before its complete failure would be demonstrated, as such plans have failed from the days of the Caesars to the present time? How much would this experiment add to the consumer's cost?

"Why, if the retail merchants of petroleum products are so regulated, should not similar regulations be imposed upon other essential commodities, such as food, clothing, and building material? Who, under such a system, would be left for gainful employment to earn a living for the other half of the population and pay taxes to support government which, of necessity, never makes money but is today the greatest spender of the money earned or saved by its citizens?

**In Public's Interest**

"Would it be any more in the public interest to disintegrate this industry than it would be to disintegrate the motor-car industry and go back to the 1920 situation when motor cars cost twice as much as they do today and were not half as good.

"The petroleum and automobile industries are examples of what individual and group initiative under a free competitive system can accomplish. Would the substitution of political training and control for economic training and control have brought equally good results? Has it ever done so in the past? Do you believe it possible in the future or do you believe that with the throttling of individual initiative, elimination of the profit motive and private management, and the destruction of a free economy would lower the standards of living in our country as it has everywhere and every time it has ever been tried?"

The petroleum industry has not failed in any public obligation in so far as its operations are concerned, Byles stated in the conclusion of his address before the institute's convention. However, he said, "like other successful enterprises, it has been so immersed in its own problems that it has not paid enough attention to its public relations.

"These should be developed in every proper way. This, and other industries, might well consider means for getting the facts before the people."

# *Private Initiative Has Given U. S. Oil Industry World Supremacy, A.P.I. Told*

N. P. N. News Bureau

CHICAGO, Nov. 9.—The petroleum industry in this country, under the direction of private capital, individual initiative and free competition, has achieved by far the highest degree of development of any part of the world.

This was the theme developed in the address by George A. Hill, Jr., Houston Oil Co. of Texas, Houston, to be presented at the general session of the 18th annual meeting of the American Petroleum Institute here, Nov. 10. His subject was "Trends in the Oil Industry."

Foreign exploration, production and refining have been dependent to a very great extent upon the methods developed by oil companies in this country and upon supplies and equipment developed and manufactured here, his address stated.

"No major development has resulted from purely governmental activity in any part of the world, and no government-controlled branch of the industry in any foreign country has been able to keep abreast of the progress made in the industry by private capital and enterprise," it was stated.

Oil field and refinery workers are among the highest paid workers in all industry, Hill stated, citing U. S. Department of Labor statistics on this point. He said employes in every branch of the oil industry have enjoyed, in comparable fashion, the same marked trend toward higher wages and a reduced work week.

**Wage Rate Shown**

The average hourly wage rate of the refinery worker is now 96.6 cents, compared with an average for all industries of 65.7 cents, he stated, and the average refinery work week is now 35.5 hours, as compared with 49 hours in 1929.

"The refinery worker's earnings are now 9 per cent more than he received in 1929 for 28 per cent less occupational hours," Hill stated.

The average hourly wage rate of the oil field worker is now 84.5 cents, as compared with 66 cents average hourly wage in 1929, and the average oil field work week is now 39 hours, as compared with a 51-hour average work week in 1929, he stated.

"The industry is not unmindful of its responsibilities in training and educating the men in the field in a better understanding of their every-day problems and in equipping them for positions of higher responsibility," he stated.

"It is co-operating, through a committee of the American Petroleum Institute, with the various state vocational authorities in formulating and validating text material which is taught in night schools in the producing areas. Thousands of workmen have been and now are attending these classes."

**Governmental Functions**

Helpful functions of government in regulation and in aid of petroleum industrial progress, Hill's address stated, are recognized in the promotion of conservation, in the prevention of physical and economic waste and in the scientific ascertainment of consumptive demand.

"Government control," it was

**How Conservation Is Being Effected**

N. P. N. News Bureau

CHICAGO, Nov. 9. — Remarkable accomplishments have already been made in this country in the furtherance of the principles of conservation of oil resources, George A. Hill, Jr., Houston Oil Co., Houston, brought out in an address to be presented before the American Petroleum Institute here Nov. 10, on the subject of "Trends in the Oil Industry". He listed these developments as follows:

1—Enactment of comprehensive conservation statutes by state legislatures in Arkansas, Kansas, Louisiana, New Mexico, Oklahoma, Texas.

2—Enactment of economic waste and or market-demand statutes by Arkansas, Kansas, Louisiana, New Mexico, Oklahoma, Texas.

3—Orders of state regulatory bodies, such as the Arkansas Board of Conservation, State Corporation Commission of Kansas, Commissioner of Conservation of Louisiana, Oil Conservation Commission of New Mexico, Corporation Commission of Oklahoma, Railroad Commission of Texas.

4—The Interstate Oil Compact Commission, approved by Congress and ratified by New Mexico, Oklahoma, Kansas, Colorado, Texas and Illinois.

5—Statistical and other services of the U. S. Bureau of Mines in forecasting consumptive demand.

stated, "whether effectuated through government monopoly, governmental expropriation, import and export regulation, or through the nationalization of petroleum and other natural resources, has hampered, obstructed and restricted petroleum industrial development, as compared with or measured by the achievement of private capital, private initiative and private management."

Hill stated national defense and national welfare are best promoted and served by the extensive and efficient development of petroleum through the media of private capital, initiative and management in a free competitive system, susceptible of quick mobilization for emergent national service.

The application of conservation principles, Hill said, have brought both increasing limitations and exceptions to the rule of capture. He pointed out a list of restrictions which now govern an owner or lessee, pointing out that he cannot:

"(a) Drill without a permit of a regulatory body duly applied for;

(b) Locate a well except as the applicable spacing rule, or exception granted, specifies;

(c) Penetrate surface water sands without adequate subsequent protective casing;

(d) Complete a well without a proper casing program and suitable means for shutting off extraneous water;

(e) Produce a well except through tubing with restricted flow;

(f) Utilize gas in reservoir as a lifting agency beyond a permitted gas-oil ratio;

(g) Currently produce in excess of established allowable production;

(h) Create fire hazards or waste oil by use of earthen storage;

(i) Transport oil by pipeline without pipeline permit;

(j) Dispose of salt water without prevention of pollution;

(k) Abandon a well without proper plugging."

### Oil Regulation Abroad

Government monopolies and expropriation, and the nationalization of natural resources, have constantly diminished foreign individual and corporate enterprise, Hill stated. He took as examples a number of individual countries to prove his point.

Russia, Hill stated, has in effect a complete government monopoly covering ownership of petroleum in place, producing, refining, transporting, and marketing facilities, as well as government control of imports and exports.

"Italy", Hill pointed out, "controls importations of oil; supervises retail marketing; has negligible production, and conducts foreign exploratory operations through a semi-official utility corporation. Foreign company retail marketing in Italy is covered by a cartel."

Continuing his examples of other countries, Hill said:

"In Poland the minerals are owned by the government, and each prospector must have a permit from the government, with strict regulations and with rights of the concessionaire very limited.

"In Roumania the minerals are owned by the government, and the operations of private companies are under strict government regulation, and the imposition of exchange regulations also obstructs and hampers the operations of foreign companies.

"In Iraq the government owns the minerals; grants concessions under stringent regulations; imposes requirements concerning transportation and marketing facilities; requires guaranteed annual revenue therefrom, and imposes strict regulations.

"In the Netherland East Indies the government, in the main, owns the petroleum deposits, and exercises the exclusive right to extract such minerals, under the principle of regality; and, likewise, the exclusive right to contract for their extraction.

"In British India petroleum is largely state-owned, although there is some private ownership; but no prospecting is permitted except by a British subject or a British-controlled company having a certificate of approval from the government and a prospecting license.

"In Papua and the mandated territory of New Guinea the minerals are owned by the commonwealth, and much of the early exploration was under the joint conduct of the British and Australian governments. Exploitation is now conducted by companies having a license or concession under strict regulation.

"In Japan the production is negligible, and every phase of the domestic oil industry is under stringent government control.

"In Bolivia the new fundamental law relating to petroleum, and the agency administering the same, known as the Yacimientos Petroliferos Fiscales Bolivianos, controls both exploration and exploitation. Governmental supervision and control are strong.

"In Argentina the government has set up a petroleum agency, and has acquired a number of privately-owned properties from companies engaged in all phases of the industry.

"Mexico, under its government program, has nationalized its petroleum resources, and is directly engaged in the oil business under its national agency, Petromex. Mexico has declined from its position as the second largest oil producer in the world to the present production of about 120,000 bbl. a day."

***Ranking of Leading Countries in World Crude Oil Production in 1936**

| Country | Barrels Production | % of World Total |
|---|---|---|
| 1. U. S. | 1,097,640,000 | 60.6 |
| 2. Russia | 215,578,060 | 11.9 |
| 3. Venezuela | 165,452,400 | 9.1 |
| 4. Roumania | 61,471,172 | 3.4 |
| 5. Iran (Persia) | 57,363,600 | 3.2 |
| 6. Neth. India | 42,217,900 | 2.3 |
| 7. Mexico | 40,368,183 | 2.3 |
| 8. Iraq | 29,405,815 | 1.7 |
| 9. Colombia | 20,512,800 | 1.1 |
| 10. Peru | 17,541,600 | 1.0 |
| 11. Argentina | 14,850,000 | 0.8 |
| 12. Trinidad | 13,022,000 | 0.7 |
| Others (chiefly 14 c'ntries) | 34,806,420 | 1.9 |
| World total, | 1,810,229,950 | 100.0 |

*Reprinted by permission of Oil Weekly—Feb. 22, 1937.

# Altitude Effect On Knock Rating Reported To API

N. P. N. News Bureau

CHICAGO, Nov. 9.—The anti-knock rating of motor fuels required by automobiles to avoid knock decreases with increasing altitude, the rate of decrease in anti-knock quality varying from 3 octane numbers starting from sea-level, varying to about 7.5 octane numbers at elevations around 12,000 feet.

So find Neil MacCoull, K. L. Hollister and R. C. Crone, all of The Texas Co.'s technical staff, in a report to be presented at the American Petroleum Institute convention session on motor fuels Nov. 12.

These tests were carried out during the summer of 1937, in four stages; at approximately sea-level, at 5100 feet, at 6000 feet and at 12,000 feet elevation on well improved and approximately level roads. Two sets of fuels were used; one set consisted of straight-run gasolines, the other mainly of cracked gasolines, using low octane number fuels in blending to obtain fuels of anti-knock rating well below the ratings of the cracked material.

Average octane rating requirements for all cars tested were found to be 69 at sea-level, 52 at 5100 feet, 49 at 6000 feet and 18 at 12,100 feet elevation. This indicated that over the great western plains and mountain area, from about the eastern boundaries of Montana, Wyoming, Colorado, and New Mexico to the Pacific slope the average car can use satisfactorily gasolines of at least 10 octane numbers lower than at sea-level. No cars needed higher than 63 octane number fuels at these higher levels. Some needed 78 octane number at sea-level, it was reported.

### Variation in Ratings

Variation in road ratings of octane number for the cracked fuels tested was from 6 units "appreciation" to 1.5 units "depreciation," as compared with straight-run fuels tested in the same cars. The cracked fuels used varied in "sensitivity" from zero for blends, with straight-run fuel, up to 55 octane number, to 9 octane number at 79 ASTM octane rating of straight cracked fuel with lead.

Twelve cars were used in these tests, representing more than 92% of all 1937 cars sold in the U. S.; Ford 85; Chevrolet Master Six; Plymouth, Dodge; Pontiac Eight; Oldsmobile Six; Buick 40; Packard 120; Chrysler Royal (C-16), Terraplane; Studebaker President and Lincoln Zephyr. New fuel jets, complying with makers' recommendations for elevations of 10,000 feet and above, were installed in the carburetors for the 12,100 feet tests.

### Fuel Jets Used

Use of these jets to give leaner mixtures improved acceleration by as much as 18%; the octane number requirement was raised as much as 8% at the same time. The rate of change of anti-knock requirements with altitude was only slightly less with cracked than with straight-run fuels, the authors found. The anti-knock requirement with cracked fuels was 1.5 octane numbers lower than with straight-run fuels, at sea-level. At 6000 feet the requirements with cracked fuel were one unit higher than with straight-run gasoline.

The standard API procedure for rating cars was followed, but some other details were included. These consisted of short accelerations on a fairly level road, from 10 m.p.h. up to 50 m.p.h., recording maximum knock intensity, car speed at which it occurred, and car speed when knock disappeared.

### Oil Laboratory

DENVER, Nov. 8. — The state executive council has taken under advisement a request by President M. F. Coolbaugh, of the Colorado School of Mines, for funds to build an oil-testing laboratory at the school which would cost from $10,000 to $14,000 and would be equipped and operated by the U. S. Bureau of Mines to serve all western states.

# More Letters from Files Read Nov. 8

(*Continued from page* 12)

examination by Col. Donovan.

Peterson told Donovan, in response to questions, that most of his sales during 1935 and up to March 1, 1936, were at or above the "low" quotation of the Chicago Journal of Commerce.

He said his total sales during the period included 550 cars at or above the "low" and 399 below. Donovan brought out that some of these sales were to brokers, which "normally" would be made below the price received from jobbers, and which fact would decrease the number of cars sold to jobbers below the "low."

Donovan also asked the witness if his volume of business in 1935 and 1936 was as good as in previous years, and Peterson said "as good as in average years, yes."

Then Donovan asked if Peterson thought there were as many jobbers in 1935 and 1936 as in previous years, and the witness said he thought there were as many, maybe more.

When Peterson was excused from the stand, Judge Stone recessed court, at 12:10 p. m. Nov. 5, for the week end. At this point government counsel said they hoped to complete the prosecution's case by Nov. 11 or 12.

Pick up Monday 'Take' Here)

As court reconvened Nov. 8 after the week-end recess, Chaffetz announced that the prosecution had "taken stock" over the week-end and found they had been able to eliminate "a good deal of testimony we had planned to introduce," with the result that the government planned, he said, to complete its case Wednesday, Nov. 10.

The government counsel said that but for testimony of the accountants working on the government's case, they would have been able to conclude even sooner, but that the accountants would not be prepared to testify before Wednesday.

Three witnesses were heard during the half-day session Nov. 8—E. M. Kelly, assistant to the assistant sales manager of Phillips Petroleum Co., Bartlesville, Okla.; E. McClure Rouzer, Baltimore, secretary and vice president of Mid-Continent Petroleum Corp., and Robert L. Bosworth, New York, assistant secretary and treasurer of Continental Oil Co.

Kelly testified that his duties included handling of sales to jobbers, which sales had been increasing, in ratio to Phillips' total sales, during the past three years. He said jobber sales accounted for 32.8 per cent of the company's output in 1935, 40 per cent in 1936, and 44 per cent during the first 10 months of 1937.

### Jobber Business Essential

This led Col. Donovan to ask the witness, on cross examination, if they considered the jobbers' outlet an essential one to the company, and Kelly answered affirmatively.

In response to questions by Chaffetz, Kelly said he knew his company was buying gasoline in 1935 and 1936, and that they had been buying it since 1931. He also said he had read in various publications of meetings concerning buying of gasoline, but did not know whether his company participated or not.

Cross examining, Col. Donovan asked what percentage of Phillips' jobbers had gone out of business in the past five years. Kelly said "less than one per cent."

Donovan also brought out that the company's total sales of gasoline had increased from about 8,000,000 barrels in 1931 to more than 12,500,000 barrels in 1936, and that 1937 sales were running about 13 per cent ahead of 1936. Kelly said that the company's refineries had been operating at capacity, but that it still had to buy gasoline to meet sales requirements.

### Letter Is Read

Rouzer's testimony concerned chiefly the corporate structure of the Mid-Continent Co., identification of certain of its officers and identification of a letter said to have been written by R. W. McDowell, marketing vice president of the company, to C. S. Smith of National Refining Co., Cleveland. In the letter, read to the jury by Chaffetz, McDowell remarked on reports that National planned to buy some gasoline, and added "if you are going to buy, I should like to make some suggestions so that you'll buy where it will help the market . . . . You are conversant with the stabilization efforts some of us are making along these lines, and it just seems to me that the National Refining Co. should be willing to contribute a little because you are benefitting by the general improvement that has resulted from our efforts to date."

The letter was dated April 17, 1935.

Rouzer said that in his company the departments all function as units, with the vice president in charge of each reporting to the board of directors through the president periodically.

Testimony of Bosworth, on direct examination, was largely descriptive of Continental's setup, how it operated, its officials, and their duties.

On cross examination by Col. Donovan, Bosworth said his company's production of gasoline has never equaled its sales requirements, and that it has purchased "substantial quantities" of gasoline every year since 1929. However, he said, purchases in 1936 were less than in 1935, which in turn were less than in 1934.

Chaffetz then took the witness for re-direct examination, and asked:

"Did you know whether any of the purchases made by your company from independent refiners (during 1935 and 1936) were made in connection with any major company buying program?"

"I had no connection with the buying," the witness answered.

"You just don't know, one way or the other?"

"No, sir."

After excusing Bosworth from the stand, the prosecution read some more of the letters and other documents from the Shell files, similar to those read at the Nov. 5 session.

One of these, a letter from P. E. Lakin, general sales manager of Shell, to A. V. Bourque, secretary of Western Petroleum Refiners Assn., asked if Bourque would send Shell a monthly statement "showing the number of cars purchased during each month by the 'buying group' ".

Another document read to the jury was a price review for the week ended Aug. 17, 1935, from Lakin to President Fraser, which said, in part, "The Group 3 market is strong, with no distress material available: inter refinery buying promptly relieves the market of any accumulation of gasoline."

At 11:55 a. m., as Lewin concluded reading one of the price reviews, Judge Stone declared a recess until afternoon, whereupon Chaffetz suggested "it may be as well to recess until tomorrow (Tuesday) morning; we may not have sufficient to keep going all afternoon." So the judge recessed court until 10 a. m., Nov. 9.

Francis T. Hopp, Tulsa, secretary treasurer and a director of Skelly Oil Co., first witness called by the government as court opened Nov. 9, was questioned about the Great Lakes Pipeline Co. and his company's interest in it. He said Skelly owned, during 1935-36, about 15 per cent interest in the pipeline, which extended from Oklahoma as far north as the Twin Cities, with branch lines.

"Is it cheaper to transport gasoline by pipeline than by tank car?", Government Counsel Lewin asked. Hopp said he didn't know, but thought it was.

Next Hopp was questioned as to whether W. G. Skelly, president of the company and an individual defendant in the case, was active in operation of the company in 1935-36. Hopp said he was, and added, in response to questions that James Nagle, executive assistant in the Skelly organization and also a defendant, was in charge of purchases of gasoline on the spot market during 1935-36.

When Col. Donovan took the witness for cross-examination he asked if the company made any purchases of gasoline in 1935-36 and was told that it did. Hopp said they had been purchasing gasoline "for years."

### Didn't Over Buy

He said the company bought about 411,000 barrels of gasoline to meet sales requirements in 1935 and 391,000 barrels in 1936. Donovan asked him how nearly production plus purchases of gasoline approximated sales requirements in 1935, and was told that they came within 5/100 of one per cent; in 1936 the company's production of gasoline, plus purchases, came within 8/100 of one per cent of sales demand for the year.

Less than half the company's total purchases of gasoline in both years, he said, was from independent refiners.

Donovan then questioned the witness on sales to jobbers, and was told that from 50 to 60 per cent of the company's total sales of gasoline were to jobbers. Hopp told him the Skelly company considered jobbers its "most important sales outlet".

Lewin asked the witness, on re-direct examination, what percentage of Skelly's total sales in 1935 represented purchased gasoline. The witness said less than 10 per cent in 1935 and less than eight per cent in 1936 were purchased gasoline, and that less than 5 per cent of total sales in either year were of gasoline purchased from independent refiners.

### Just a Beginner

During the morning session Hopp was asked by Lewin how Skelly bulk stations operate, and the witness answered that he didn't know. This led Judge Stone to ask: "How long did you say you'd been in the oil business?"

"About 22 years."

"It seems to me you ought to know a little more about the business then," Judge Stone commented.

L. S. Wescoat, Chicago, vice president and secretary of the Pure Oil Co., followed Hopp. Chaffetz took over the questioning, asking the witness about

# Government Nears Close of Case Nov. 9

the set-up of his company. Wescoat said H. M. Dawes is president and chief executive officer of Pure, and that he was active in the affairs of the company. During the first six months of 1935, the witness said, Mr. Dawes was in Washington quite a bit of the time on affairs of the Planning and Co-ordination Committee.

Wescoat also identified C. B. Watson, vice president in charge of refining and marketing and also a defendant in the case, as being in charge of the department which handled purchases of gasoline, with which R. H. McElroy, Jr., another defendant, was more closely connected. He said, in response to questions, that the president has jurisdiction over the heads of all the departments, but doesn't supervise the operations of the departments.

Charles I. Francis, Pure attorney, cross-examined Wescoat, and endeavored to have a number of large charts, mounted in a wooden frame introduced into evidence and shown the jury. Numerous objections from government counsel on grounds of improper cross-examination led to a conference at the bench between opposing counsel. One enlarged chart was allowed to be shown and smaller "editions" of some of the others introduced as evidence and explained by the witness.

One of the exhibits explained by Wescoat showed that gasoline manufactured by Pure had increased from about 485,000,000 gallons in 1931 to 530,000,000 in 1936. Another showed that purchases from East Texas and Mid-Continent independent refiners, while they had increased from 1931 to 1936, were considerably less than purchases from other sources.

### Buys at Several Sources

A third source of gasoline, aside from the company's own production, was described by the witness as that from "gasoline processing contracts," whereby other refiners manufacture crude supplied by Pure. Gasoline from this source in 1935 amounted to about 60,000,000 gallons, and in 1936 to 79,000,000 gallons, the witness said. He testified that purchases from independent refiners in East Texas and Mid-Continent in 1935 amounted to 10,339,505 gallons, and in 1936 to 16,919,899 gallons. Purchases from other sources in 1935, he said, were 18,906,464 gallons, and in 1936, 23,205,085 gallons.

Another tabulation which Francis gave to Wescoat just before the close of the morning session was said to show gasoline purchases from all Mid-Continent and East Texas independent refiners, how the gasoline was bought (by contract, spot or otherwise), the specifications, and the price paid. It was admitted in evidence, but Judge Stone recessed the court for lunch before it could be examined. Francis also attempted to show the jury an enlargement of the tabulation, also one of the charts contained in the wooden framework, but Government Counsel Crawford objected, declaring:

"We've allowed counsel to go quite a way here, and I think there's a limit to how far we should go in allowing counsel to present his own case here. . . ."

The objection was sustained, and court recessed until 2:00 p. m.

Wescoat, still on the stand when court resumed in the afternoon, told how his company's sales had increased annually since 1933, and said that demand during the winters of 1934-35 and 1935-36 was greater than the preceding winters. The result was that the company was unable to build up its inventories in the winter, as had been its custom.

Francis attempted to have Wescoat tell how many days available supply of gasoline were necessary to the orderly conduct of business, but government counsel objected on the ground that the question was beyond the scope of direct examination. The objection was sustained.

### 'Over-all Company'

Last witness called at the afternoon session, and, according to government counsel, the last to be called before they begin presentation of testimony of accountants and auditors Nov. 10, was George G. Brownell, Westfield, N. J., of the Cities Service Co. Brownell's position with the company was not mentioned. He is listed as treasurer.

Brownell described the Cities Service Co. as a holding company, with a number of subsidiary companies. He explained, in response to questioning by Chaffetz, that the Henry L. Doherty Co., had operated as a "staff of technical advisers" to subsidiary companies of Cities Service Co., and identified H. D. Frueauff as connected with both companies in connection with marketing and refining interests. Frueauff is a defendant in the case.

After some questioning, Chaffetz read a letter which mentioned the "over all company's" participation in a "general buying agreement", and asked Brownell what he understood by the "over all company". He said he would assume it meant the entire Cities Service Co. and subsidiaries.

There was no cross-examination of Brownell, and, as government counsel had no other witnesses to call, more Shell correspondence, which had been introduced previously, was read.

Several more price reviews, similar to those read at former sessions, were read. Some of them commented on the firm market being the result of inter-refinery buying, and others said that small surpluses would be removed "through inter-refinery buying." All were dated in the last three months of 1935 or early in 1936.

Lewin read one letter from the Shell files said to be from R. W. McDowell, Mid-Continent Petroleum Corp., to P. E. Lakin, Shell vice president, in which he said:

"I believe it is going to be highly important to our committee to meet before the close of the month for the purpose of looking over Mr. Bourque's figures in connection with the refining situation. Hence, I am calling a meeting to be held in the offices of the W. P. R. A. at 10 o'clock the morning of December 30." The letter was dated Dec. 19, 1935.

After Lewin had read a number of these documents, he told the court that the government would rest its case for the day with the exception of a number of stipulations. These covered agreements among opposing counsel on probable testimony of uncalled witnesses. After these had been read into the record, court recessed until Wednesday.

# Chemical Engineers Include Session For Oil Men at Annual Meeting

NEW YORK, Nov. 9.—American Institute of Chemical Engineers will hold its thirtieth annual meeting in St. Louis at Hotel Chase, Nov. 17-19. The session of Friday afternoon, Nov. 19, will be applicable to oil technology.

"The Performance of Bubble Plate Columns" will be presented at the Friday session. The paper was prepared by M. Souders, Jr., Yale University, R. L. Huntington, University of Oklahoma, H. G. Corneil, Humble Oil and Refining Co., and F. L. Emert, Phillips Petroleum Co. Original data have been obtained on froth heights and pressure differentials in a bubble-plate column by observing the performance of air-kerosine and air-lubricating oil systems in a visible glass section.

"A New Type of Fluid Rate Flow Meter," constructed of ordinary glass tube, a metal cone and an annular bob, will be described by L. E. Stout or A. R. Rowe, both of Washington University, who collaborated in preparing the paper . The meter is said to be accurate and have many of the desirable features of the rotameter.

Use of metal knit cloth for tower packing in plate columns has been tested at Virginia Polytechnic Institute by F. C. Vilbrandt, E. D. Shuffle, Jr., and S. B. Row. Results of the tests will be discussed. They found, for example, that pressure drop was about the same as for one-inch Raschig rings. Plate efficiency was enhanced considerably.

B. Miller, Cities Service Co., will discuss "Fluid Flow in Clean Round Straight Pipe". W. L. Faith and J. E. Hedrick, Kansas State College, have prepared a paper on "Unit Process Laboratory Instruction in Thermal Decomposition".

On the Thursday morning program, "Some Theoretical Considerations in the Safe Handling of Flammable Liquids" will be presented by F. C. Mitchell and H. C. Vernon, E. I. duPont de Nemours & Co.

### Retailers Publish Paper

PORTLAND, Ore., Nov. 9.—The first issue of the Oregon Petroleum News, official publication of the Consolidated Gasoline Retailers of Oregon, was published Oct. 13. It is devoted to news of interest to service station operators.

It is in newspaper style, 17 by 11 inches. There are several departments, including those on legal news, trade chats, news among suppliers and in the field, and an editorial page.

One of the features of the first edition was the reprinting of the "Five-Gallon Buyer" series from NATIONAL PETROLEUM NEWS, written by a staff writer following his recent motor trip of 4700 miles through the Pacific Northwest.

# Gasoline Demand Gained 10% In First 8 Months of 1937

N. P. N. News Bureau

NEW YORK, Nov. 8.—Nearly 14,000,000,000 gallons of gasoline for automotive use were consumed in this country during the eight months ended August this year, representing an increase of 1,247,148,000 gallons, or 9.79 per cent, over the corresponding period of last year, according to tax reports filed by wholesalers and dealers, the American Petroleum Institute says.

Daily average demand in this period this year gained 10.19 per cent over last year, the difference between the total and the daily average percentage of increase being due to the extra day last year. Daily average demand was 57,552,000 gallons, compared with 52,204,000 gallons in the eight-month period last year.

Not a single state indicated a decrease in this eight-month period. Increases ranged from 0.34 per cent in Nebraska to 18.72 per cent in South Carolina. Increases in the six largest gasoline consuming states were: California, 7.46 per cent; Illinois, 10.57; New York, 7.80; Ohio, 11.34; Pennsylvania, 12.77; and Texas, 11.27 per cent.

In August, consumption totaled 2,037,433,000 gallons, an increase of 146,587,000 gallons, or 7.75 per cent over August a year ago. Daily average demand was 67,724,000 gallons, compared with 60,995,000 gallons in August last year.

Three states indicated decreases in August. Two were negligible, but in Rhode Island, the decrease was 11.58 per cent. The two others were in Montana and Nebraska, each less than 1 per cent.

Detailed figures are given in the accompanying table.

### Early S. O. Worker Dies

CLEVELAND, Nov. 9.—The death recently of Frederic Mortimer Nicholas, at the age of 82, removes another early employe of the old Standard Oil Co. Mr. Nicholas began work here in the early days as an accountant with the Standard, but retired in 1907 to live in New York. Since 1925, he has been a resident of Cleveland and Unionville, O. He is survived by his wife and married daughter, Mrs. Leroy B. Davenport.

### Dinner Postponed

CHICAGO, Nov. 8.—Celebration by the Chicago section of the American Chemical Society of the 70th birthday anniversary of Dr. V. N. Ipatieff, world-famous authority on catalysis now on the staff of Universal Oil Products Co., has been postponed from Nov. 19 to Nov. 26, according to Dr. J. C. Morrell, chairman of the Chicago section. The dinner will be held at the Stevens Hotel.

### Rathman With Cryden

DRAYTON PLAINS, Mich., Nov. 9.—Harvey Rathman, formerly connected with Chicago retail operators during the days of the NRA code, and more recently salesmanager for Producers Refining Co., at West Branch, Mich., has joined Cryden Refineries, Inc., as vice-president and general manager, with headquarters at the company's refinery here.

## Gasoline Consumption In U. S. For Eight Months and For August, 1937

*(Figures in thousands of gallons from tax reports compiled by American Petroleum Institute)*

| | Month of July, 1937 Gallons | Month of Aug., 1937 Gallons | Month of Aug., 1936 Gallons | % Change 1937 over 1936 | 8 Months Ended With Aug., 1937 Gallons | 8 Months Ended With Aug. 1936 Gallons | % Change 1937 over 1936 |
|---|---|---|---|---|---|---|---|
| Alabama | 20,789 | 20,524 | 18,242 | +12.51 | 148,767 | 130,359 | +14.12 |
| Arizona | 8,994 | 8,766 | 7,937 | +10.44 | 68,034 | 62,013 | + 9.71 |
| Arkansas | 15,212 | 15,630 | 14,430 | + 8.32 | 109,309 | 97,857 | +11.70 |
| California | 154,821 | 157,575 | 141,651 | +11.24 | 1,168,230 | 1,087,115 | + 7.46 |
| Colorado | 23,427 | 23,991 | 21,685 | +10.63 | 148,661 | 134,391 | +10.62 |
| Connecticut | 33,206 | 31,369 | 30,034 | + 8.01 | 214,216 | 195,370 | + 9.65 |
| Delaware | 5,758 | 5,497 | 5,448 | + 0.90 | 36,844 | 32,947 | +11.83 |
| District of Columbia | 12,718 | 11,972 | 11,451 | + 4.55 | 90,646 | 83,042 | + 9.16 |
| Florida | 24,576 | 24,340 | 22,390 | + 8.71 | 218,994 | 210,167 | + 4.17 |
| Georgia | 29,275 | 29,115 | 27,681 | + 5.18 | 212,694 | 195,580 | + 8.75 |
| Idaho | 9,976 | 11,219 | 10,476 | + 7.09 | 60,517 | 55,475 | + 9.09 |
| Illinois | 126,579 | 123,616 | 113,971 | + 8.46 | 855,829 | 774,001 | +10.57 |
| Indiana | 59,013 | 56,925 | 52,864 | + 7.68 | 407,004 | 362,160 | +12.38 |
| Iowa | 47,658 | 46,493 | 43,912 | + 5.88 | 328,881 | 300,548 | + 9.44 |
| Kansas | 54,984 | 51,242 | 41,094 | +24.69 | 321,966 | 302,238 | + 6.55 |
| Kentucky | 23,931 | 24,323 | 22,069 | +10.21 | 166,402 | 146,516 | +13.57 |
| Louisiana | 21,059 | 20,907 | 18,274 | +14.41 | 152,706 | 138,498 | +10.26 |
| Maine | 17,905 | 18,553 | 17,111 | + 8.43 | 96,344 | 87,177 | +10.51 |
| Maryland | 26,391 | 25,715 | 24,114 | + 6.64 | 177,335 | 158,080 | +12.18 |
| Massachusetts | 71,507 | 68,692 | 66,017 | + 4.05 | 461,923 | 427,076 | + 8.16 |
| Michigan | 111,724 | 108,923 | 97,906 | +11.25 | 738,703 | 644,339 | +14.63 |
| Minnesota | 54,232 | 54,068 | 50,389 | + 7.30 | 328,884 | 310,655 | + 5.87 |
| Mississippi | 17,044 | 17,999 | 15,377 | +17.05 | 124,925 | 106,490 | +17.31 |
| Missouri | 55,215 | 56,664 | 52,245 | +10.37 | 384,427 | 367,221 | + 4.68 |
| Montana | 13,218 | 12,365 | 12,415 | - 0.40 | 76,315 | 73,594 | + 3.70 |
| Nebraska | 23,091 | 22,244 | 22,284 | - 0.18 | 150,936 | 150,425 | + 0.34 |
| Nevada | 4,034 | 4,192 | 3,776 | +11.02 | 24,203 | 22,257 | + 8.74 |
| New Hampshire | 10,332 | 10,547 | 9,992 | + 5.55 | 57,452 | 53,263 | + 7.86 |
| New Jersey | 83,779 | 78,728 | 76,752 | + 2.57 | 545,375 | 485,278 | +12.38 |
| New Mexico | 8,886 | 8,686 | 7,902 | + 9.92 | 58,439 | 49,712 | +17.55 |
| New York | 187,289 | 181,709 | 178,466 | + 1.82 | 1,206,766 | 1,119,448 | + 7.80 |
| North Carolina | 34,223 | 34,770 | 32,635 | + 6.54 | 252,467 | 220,529 | +14.48 |
| North Dakota | 12,813 | 15,473 | 11,611 | +33.26 | 81,015 | 72,511 | +11.73 |
| Ohio | 120,138 | 118,447 | 110,706 | +16.00 | 844,128 | 758,174 | +11.34 |
| Oklahoma | 38,419 | 36,273 | 31,098 | +16.64 | 255,947 | 241,050 | + 6.18 |
| Oregon | 24,031 | 24,893 | 23,076 | + 7.87 | 150,223 | 140,553 | + 6.88 |
| Pennsylvania | 138,250 | 134,332 | 125,026 | + 7.44 | 931,633 | 836,152 | +12.77 |
| Rhode Island | 12,343 | 10,716 | 12,120 | -11.58 | 80,495 | 76,291 | + 5.51 |
| South Carolina | 16,988 | 16,628 | 15,227 | + 9.20 | 123,973 | 104,427 | +18.72 |
| South Dakota | 12,375 | 11,542 | 10,680 | + 8.07 | 75,401 | 74,616 | + 1.05 |
| Tennessee | 24,771 | 26,099 | 25,089 | + 4.02 | 177,694 | 163,378 | + 8.76 |
| Texas | 111,988 | 108,083 | 99,425 | + 8.71 | 795,135 | 714,621 | +11.27 |
| Utah | 9,232 | 8,998 | 8,407 | + 7.03 | 57,882 | 52,530 | +10.19 |
| Vermont | 7,690 | 7,842 | 7,280 | + 7.72 | 42,464 | 38,661 | + 9.84 |
| Virginia | 32,302 | 32,532 | 30,889 | + 5.32 | 224,658 | 202,594 | +10.93 |
| Washington | 35,015 | 35,750 | 32,974 | + 5.32 | 221,319 | 210,083 | + 5.35 |
| West Virginia | 18,531 | 19,102 | 18,037 | + 6.25 | 130,083 | 115,779 | +12.35 |
| Wisconsin | 56,883 | 54,925 | 51,292 | + 7.08 | 335,941 | 304,762 | + 9.60 |
| Wyoming | 7,864 | 8,439 | 6,919 | +21.97 | 42,856 | 37,950 | +12.94 |
| Total | 2,070,479 | 2,037,433 | 1,890,846 | + 7.75 | 13,985,031 | 12,737,883 | + 9.79 |
| Daily Average | 66,790 | 65,724 | 60,995 | + 7.75 | 57,552 | 52,204 | +10.19 |
| Change from previous year: | | | | | | | |
| Total change | ..... | +146,587 | ..... | | +1,247,148 | ..... | |
| Per cent chg. in Daily Av. | ..... | +7.75% | ..... | | +10.24% | ..... | |

## Court Denies Standard Bill in Pan-Am Suit

*By Teletype*
N. P. N. News Bureau

NEW YORK, Nov. 9.—Justice B. L. Shientag of New York Supreme Court has refused to grant a motion by Standard Oil Co. (Indiana) to separate into four parts the bill of complaint filed by the late Louis Blaustein and Jacob Blaustein, his son, both of Baltimore, against the Indiana company and Standard Oil Co. (New Jersey), it was learned today.

The Blausteins, founders of American Oil Co., which was merged four years ago with Pan-American Petroleum & Transport Co., earlier this year brought suit against the two Standard companies and certain officers and directors charging they forced Pan-American to violate the merger contract, which allegedly injured the independence and integration of Pan-American. Standard Oil Co. (Indiana) owns approximately 78 per cent of Pan-American and the Blausteins, 20 per cent.

Justice Shientag also ruled against the contention of Standard Oil Co. (Indiana) that the Blaustein suit was personal, holding, in effect, that the suit was brought on behalf of Pan-American. The court also declined to eliminate any portion of the Blaustein contract from the bill of complaint.

## Council Of Dealers Formed in New York

NEW YORK, Nov. 9.—A joint group of garage and gasoline station men, called the Garage and Gasoline Station Operators' Council of Greater New York, has been formed. Officers are, J. Furstman, chairman; L. Perla, vice-chairman; N. Handelman, secretary and C. Hall, treasurer.

The group has the backing of borough dealer and garage associations, it was stated. The following were listed as being connected with the council's Inter-City Gasoline Dealers' Assn.: Gasoline Merchants of Brooklyn and Queens; Long Island Gasoline Retailers' Assn., and Metropolitan Garage Board of Trade.

### Exhibit on Taxes

PHILADELPHIA, Nov. 9.—The Associated Petroleum Industries of Pennsylvania has taken space at the 37th annual Automobile Show in the Commercial Museum here, Nov. 6 to 13, according to W. Purves Taylor, secretary. The petroleum exhibit will play up the load of taxes imposed on the motorist.

# Mid-Continent SKYLINE

By LAWRENCE E. SMITH, N. P. N. Tulsa News Bureau

TULSA, Nov. 5

Col. Ernest O. Thompson, member of the Texas Railroad Commission and chairman of the Interstate Compact Commission, came to Tulsa this week end but not in either of the aforementioned roles. He came to attend the convention and reunion of the 90th Division A. E. F. and politics, conservation, crude oil allowables and the like were parked in Austin.

In France the colonel had an adjutant named Hennessy who helped him with the details of running the machine gun outfits of that division. That adjutant now rates a private car—he is traffic manager of the Katy railroad—and on Friday he picked up the colonel and brought him to Tulsa. Military headquarters were set up in the Mayo Hotel and Hennessy took up where he left off in France. He was adjutant again and he aided in receiving the old boys who dropped in to yarn and tell stories about the most dramatic moments they will ever know.

We managed to get in a few words with the colonel about oil. He thinks things look good, says the Texas commission is keeping a close watch on the supply-demand situation and that the Texas end of it is in good shape, due to the big cut in allowable production for November. Recent declines in storage figures of the U. S., compiled by the U. S. Bureau of Mines, he thinks are indicative of the better condition that prevailed a month ago.

* * *

### Well Spacing Decision

A constant source of litigation in Texas is the well-spacing rule of the Railroad Commission. Rule 37 provides for spacing not nearer than 330 feet to a property line, 660 feet distance to be maintained between wells. That is a 10-acre pattern; but thousands of exceptions have been made to the rule in East Texas and elsewhere.

This week the state Supreme Court, in reversing a decision by the Austin Court of Civil Appeals, declined to state a general rule and put each case on its own merits. The case arose when Magnolia Petroleum Co. sued in district court to enjoin the commission from granting permission to Century Refining Co. to drill a well on 1.6 acres in Gregg county, in the East Texas field. Magnolia lost in district court, won in the appellate court, lost in the supreme court. Said the high court:

"An applicant for a permit to drill a well not included within the general terms of the first part of the rule, has the burden of showing a legal right thereto; having secured from the Railroad Commission an order granting a permit to drill, such order is presumtively valid. It is made so by statute, and being an official act would be presumtively valid without a statute."

* * *

### Kansas Potentials Fall

First decline in potential production of Kansas fields in three years was reported this week by the Corporation Commission of that state. The state's total Oct. 20 stood at 2,973,833 barrels daily. The preceding month showed 3,007,176 barrels.

The decline is accounted for partly by a change in the method of taking the gauges but the method now used is believed to reflect more accurately the true producing capacity of the 17,800 wells in the state.

* * *

### Strike in Oklahoma City

Indian Territory Illuminating Oil Co., discoverer of the Oklahoma City field nine years ago, was hit by a strike of field employes and its 264 wells went off production Nov. 3. Part of the nearly 600 men who struck belong to the Oil Field Workers International Union, affiliate of C. I. O.

I. T. I. O. has had a contract with the union for some time. Harvey Fremming, president of the international union, J. L. Coulter, vice-president, promptly branded the strike as unauthorized and a violation of contract. John L. Lewis himself telegraphed his appeal to the men to return to work. As the week closed the men were still out, insisting that their one demand be met.

That demand was for the reinstatement of 64 men discharged by the company, whose production is declining in this field. Abandonment of wells, such as is normal in a field this old, occurs every week and the company needs fewer men as it goes along. The union men claimed that seniority rights were violated in the recent discharges.

Employes of the company in other districts were asked to join in the strike. A few went out in Kansas. Seminole district and Osage district employes refused to strike. In the Wynona district, Osage county, the vote was 75 to 5 against a strike.

The walkout—which is said to be specifically barred under the contract—was orderly and the strikers did a proper job of shutting in the wells and safeguarding equipment.

## New Calif. Well At 11,302 Feet Opens New Field

N. P. N. News Bureau

LOS ANGELES, Nov. 6. — California crude oil reserves were boosted substantially last week when Union Oil Co. completed a deep exploratory test in the floor of the San Joaquin Valley for an initial output rated at 2400 barrels daily of clean 39.6 gravity oil.

Located in Sect. 34-28-25 of the Rio Bravo district, Kern county, and about four miles northwest of the comparatively new Greeley pool, the new completion—Kernco No. 1-34—is the deepest producing well in California and the second deepest producer in the world.

It is bottomed at 11,302 feet and came in without swabbing. Pressure on the casing was gauged at 2000 pounds and on the tubing at 1950 pounds. Gas production was estimated as 1,260,000 cubic feet per day on the initial flow test.

Although the new field, which will be known as Rio Bravo, is thought to be entirely separate from developments at Greeley, it is regarded as a continuation of the sub-surface structures found at Greeley and at Ten Sections on a line to the southeast. Some geologists predict the deep sand found in the new well will also be found to underlie the two neighboring plays.

Kernco 1-34 was spudded in March 29, after seismographic surveys made by the company indicated commercial production. Union holds 1510 acres in the area, centered about the heart of the new field.

Records show that, in 1924-25, Union drilled a wildcat test known as Brinkman No. 1 about a mile west of the new gusher; but this hole, based on topographic data, was abandoned at 6053 feet when showings continued unfavorable.

Union geologists hoped to find in Kernco No. 1-34, at a depth of about 8000 feet, the same Miocene sand from which 35 gravity oil is obtained in the Greeley field. Top of the Miocene was picked up at about 7700 feet, but the productive sand did not show up. With only a surface string of casing set, drilling was continued to 10,366 feet before the drill turned up anything with a promise of oil. A string of 6⅝-inch casing nearly two miles long was set at 10,248 feet to protect the hole and permit a formation test.

Tests showed a gas content and traces of oil in the formation but no commercial production. Drilling was continued and cores taken every foot of the way. At 11,240 feet, the drill penetrated a rich oil sand, found to be 55 feet thick, resulting in the 2400-barrel commercially productive well.

Union geologists believe the productive sand is a new zone and have named it the Rio Bravo sand. There is a possibility it may prove to be the Vedder zone, which is the most prolific of all oil-bearing formations in the Bakersfield district.

## *Pioneer Producer Dies, Aged 86*

BARTLESVILLE, Okla., Nov. 8.—The death of L. L. Dimit, at the age of 86, at his home in Neosho, Mo., Nov. 3 removes one of the oldest oil pioneers in the country, and one who saw the development of the industry from the very beginning.

Mr. Dimit was the father of C. P. Dimit, vice president, Phillips Petroleum Co., Bartlesville; of J. L. Dimit, with the Gulf Oil Corp., Sapulpa, Okla.; and of W. H. Dimit, Fly, Ohio.

He was born in Allegheny county, Pa., in 1851, and at 11, began work for Col. Drake's old employer. In 1870, he joined Shealds, Adams & Co. at their producing property in Parker's Landing, one of the early Pennsylvania oil fields.

Later he became general superintendent of a large producing company, and in 1919, joined the Gypsy Oil Co., now the Gulf Oil Corp. He retired from the latter in 1927, at the age of 76. Feb. 13 of this year, Mr. Dimit and his wife celebrated their 65th wedding anniversary at their home in Neosho.

Besides the three sons, two daughters survive: Miss Hester Dimit, of Neosho; and Mrs. D. Elizabeth Butler, Minneapolis.

## *Continental Oil Cuts Dealer Prices 1 Cent*

PONCA CITY, Nov. 9. — Effective Nov. 8, Continental Oil Co. reduced dealer prices of motor gasolines at all normal points 1 cent per gallon, through Colorado, New Mexico, Wyoming and Oklahoma. However, prices were unchanged at the following points; Albuquerque, N. M., Oklahoma City, Tulsa, and Pueblo, Col. At Muskogee the price was cut 0.5 cent on Conoco Bronze (regular-grade) only.

Notice of this change arrived too late to correct price tables in this issue.

### Sohio Cuts T. C. Price

CLEVELAND, Nov. 9. — Effective Nov. 9, Standard Oil Co. of Ohio reduced its posted tank car prices for its motor gasolines 0.125 cent per gallon, following a similar reduction in prices for Oklahoma 70-72 octane U. S. Motor gasoline. The Standard's new delivered prices, for delivery anywhere in Ohio, excluding taxes are: U. S. Motor, 8.125 cents; above 65 octane gasoline, 8.375 cents.

## *Stoddard Solvent Standard Ready*

WASHINGTON, Nov. 8. — Publication of the second edition of Stoddard Solvent, Commercial Standard CS3-38, is announced by the U. S. Bureau of Standards. The standard supersedes CS3-28 and is effective Feb. 10, 1938.

Now that the standard has been accepted and recorded, its benefits will depend upon the sincerity and consistency of all concerned in adhering thereto in buying and selling, it is pointed out by F. W. Reynolds, of the Division of Trade Standards. Copies are available at 5 cents by addressing the Superintendent of Documents, Washington.

**DAILY AVERAGE PRODUCTION IMPORTANT DISTRICTS**
**American Petroleum Inst. Figures**

| | Week Ended Nov. 6 Barrels | Oct. 30 Barrels |
|---|---|---|
| Oklahoma City | 147,300 | 141,150 |
| Total Okla. | 582,400 | 586,750 |
| East Texas | 482,900 | 482,950 |
| Total Texas | 1,425,100 | 1,470,800 |
| Rodessa | 40,900 | 45,200 |
| Total La. | 235,650 | 244,000 |
| California | 696,300 | 697,000 |
| E. of Rockies | 2,836,850 | 2,905,950 |
| Total U. S. | 3,533,150 | 3,602,950 |
| Crude imports | 94,710 | 95,710 |
| Tot. new sup'ly | 3,627,860 | 3,698,660 |

## *Crude Stocks Gain*

WASHINGTON, Nov. 9. — Stocks of crude petroleum were 307,140,000 barrels on Oct. 30, a gain of 584,000 barrels over those of a week previous, the Bureau of Mines reported today. Stocks on Oct. 31, 1936, were 291,040,000 barrels.

Stocks by grades, showing changes, follow:

(Thousands of Barrels)

| Grade | Oct. 23 | Oct. 30 | Chge. |
|---|---|---|---|
| Penna. grade | 4,221 | 4,208 | — 13 |
| Other Appal. | 846 | 863 | + 17 |
| Lima-N. E. Ind.-Mich. | 1,336 | 1,249 | — 87 |
| Ill.-S. W. Ind. | 9,325 | 9,404 | + 79 |
| N. La. & Ark. | 9,682 | 9,400 | — 282 |
| W. Tex. & S. E. N. Mex. | 31,984 | 31,595 | — 389 |
| E. Texas | 25,358 | 25,893 | + 535 |
| Other Mid-Cont. | 128,001 | 129,060 | +1,059 |
| Gulf Coast | 25,123 | 25,194 | + 71 |
| Rocky Mt. | 23,653 | 23,704 | + 51 |
| California | 25,205 | 24,954 | — 251 |
| Foreign | 2,772 | 2,566 | — 206 |
| To. rptd.wkly | 287,506 | 288,090 | + 584 |
| Estimate of unrptd. stocks | 19,050 | 19,050 | 0 |
| Total stocks | 306,556 | 307,140 | + 584 |

### Meeting Date Set

COLUMBUS, O., Nov. 9.—The 15th annual convention and marketing exposition of the Ohio petroleum Marketers Assn. will be held at the Deshler-Wallick hotel, here Feb. 22, 23 and 24, Robert A. Warfel, executive secretary, announces.

## *Refinery Runs Decline 33,000 Bbls. Last Week; Gas, Fuel Stocks Down*

N. P. N. News Bureau
*By Teletype*

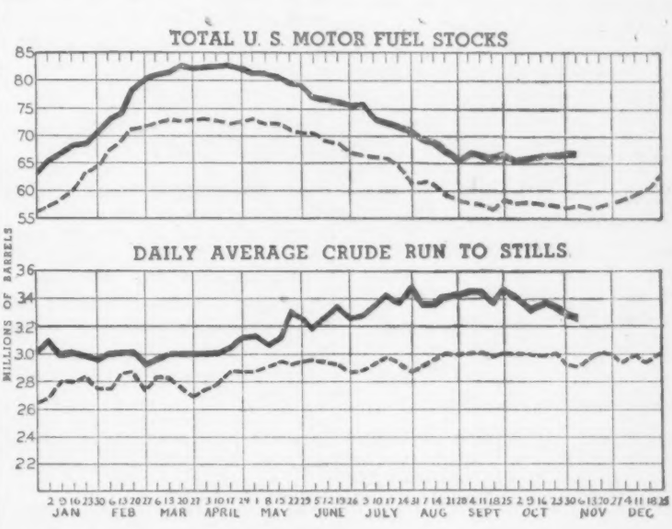
NEW YORK, Nov. 9.—A reduction of 33,000 barrels in refinery crude runs, accompanied by a reduction of 1 per cent in operating capacity of reporting plants, was indicated by the American Petroleum Institute for the week ended Nov. 6, as compared with the previous week.

Gas and fuel oil stocks were lowered 45,000 barrels, standing at 117,675,000 barrels on Nov. 6. A reduction of 385,000 barrels in Texas Gulf stocks was offset by an increase of 345,000 barrels in California. Other districts showed smaller increases and decreases, except East Coast, where stocks were lowered nearly 115,000 barrels.

Crude runs to refinery stills were cut 21,000 barrels daily average at Inland Texas plants; 16,000 barrels at Indiana-Illinois-Kentucky plants and 14,000 barrels at Oklahoma-Kansas-Missouri plants. California cut runs 30,000 barrels. Increases of 20,000 barrels in Louisiana Gulf, 11,000 barrels in Appalachian and 7000 barrels in East Coast were the principal gains of the week.

Total motor fuel stocks increased 415,000 barrels, to 63,631,000 barrels Nov. 6. The largest gains were 224,000 barrels in the Louisiana Gulf, 180,000 barrels in California, and 163,000 barrels in the Texas Gulf. A decrease of 270,000 barrels in the Indiana-Illinois-Kentucky district was the largest, with smaller decreases reported elsewhere.

Refinery stocks of motor fuels totaled 33,811,000 barrels Nov. 6, an increase of 111,000 barrels over Oct. 30. In-transit and terminal stocks totaled 23,249,000 barrels, an increase of 284,000 barrels and stocks of unfinished gasoline totaled 6,571,000 barrels a gain of 20,000 barrels.




## CURRENT REFINERY OPERATIONS

| Districts | Per Cent Capacity Reporting | Daily Average Crude to Stills (Barrels) Week Ended | | Per Cent of Reporting Capacity Operated Week Ended | | Stocks Thousands of Barrels Total Finished and Unfinished Motor Fuel* | | Stocks Thousands of Barrels Gas & Fuel Oil | | Cracked Gasoline Production % Total Capacity Reporting | Cracked Gasoline Production Daily Av. Production (Barrels) Week Ended | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nov. 6 | Oct. 30 | Nov. 6 | Oct. 30 | Nov. 6 | Oct. 30 | Nov. 6 | Oct. 30 | | Nov. 6 | Oct. 30 |
| East Coast | 100.0 | 533,000 | 526,000 | 79.7 | 78.6 | 18,260 | 18,220 | 15,145 | 15,258 | 100.0 | 122,000 | 127,000 |
| Appalachian | 88.4 | 102,000 | 91,000 | 79.1 | 70.5 | 2,616 | 2,564 | 956 | 926 | 94.6 | 20,000 | 24,000 |
| Ind., Ill., Ky. | 92.4 | 461,000 | 477,000 | 94.3 | 97.5 | 10,009 | 10,279 | 7,488 | 7,410 | 98.5 | 151,000 | 154,000 |
| Okla., Kans., Mo. | 84.7 | 265,000 | 279,000 | 69.2 | 72.8 | 6,146 | 6,155 | 3,952 | 3,902 | 90.3 | 73,000 | 69,000 |
| Inland Texas | 56.6 | 122,000 | 143,000 | 60.7 | 71.1 | 1,947 | 1,936 | 1,900 | 1,925 | 71.7 | 34,000 | 36,000 |
| Texas Gulf | 95.7 | 734,000 | 725,000 | 92.1 | 91.0 | 8,282 | 8,119 | 11,347 | 11,732 | 98.0 | 169,000 | 183,000 |
| La. Gulf | 96.6 | 154,000 | 134,000 | 91.7 | 79.8 | 2,062 | 1,838 | 3,644 | 3,639 | 100.0 | 29,000 | 34,000 |
| No. La., Ark. | 63.7 | 50,000 | 48,000 | 86.2 | 82.8 | 406 | 373 | 469 | 464 | 77.5 | 7,000 | 7,000 |
| Rocky Mt. | 69.7 | 46,000 | 47,000 | 74.2 | 75.8 | 1,315 | 1,324 | 638 | 673 | 85.4 | 16,000 | 14,000 |
| California | 90.9 | 538,000 | 568,000 | 72.1 | 76.1 | 12,588 | 12,408 | 72,136 | 71,791 | 98.0 | 70,000 | 58,000 |
| Total Reporting | 89.0 | 3,005,000 | 3,038,000 | 81.2 | 82.1 | 63,631 | 63,216 | 117,675 | 117,720 | 94.8 | 691,000 | 706,000 |
| Estimated U. S. Total (Bur. of Mines Basis) | | 3,325,000 | 3,345,000 | | | 67,271 | 66,836 | 120,925 | 121,070 | | 765,000 | 780,000 |

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit.

## Cardenas Order Cancels Leases

N. P. N. News Bureau

NEW YORK, Nov. 9.—The action of President Lazaro Cardenas late last week in nationalizing approximately 350,000 acres of Mexican oil lands under lease to Standard Oil Co. of California, does not establish a precedent for such nationalization of all lands under lease to subsidiaries of foreign oil companies, it was felt in some quarters here today. It was pointed out that the lease for part of the acreage at least was different from other leases held.

However, leases for part of the concession had already been upheld by the Mexican Supreme Court, so apparently the President has nullified the court's decision. Such action lays the other oil concessions of foreign oil companies at the mercy of nationalization if the president so wished, other sources felt.

Settlement of the general oil strike of Mexican labor still is before the Mexican Labor Board for approval. The workers called off the strike, leaving settlement of wage and social demands to the board. Oil companies have stated they cannot meet the workers' demands and continue business in Mexico.

The Mexican government is reported to be in a shaky financial condition at present and endeavoring to hold off more labor troubles, which might tend to reduce tax revenues.

### *Ask State To Use Asphalt Paving*

N. P. N. News Bureau

LOS ANGELES, Nov. 3.—The California Oil & Gas Assn. has asked the state highway commission to reconsider specifications for paving the Arroyo Seco Highway and to consider the use of asphaltic concrete.

In a resolution formally adopted by the association it was pointed out that the paving project is within one of the state's greatest oil producing areas, with a large source of supply close at hand and that, from the standpoint of durability, nonskid properties, smooth riding and safety, asphaltic concrete will serve at least as well as Portland cement.

The association also pointed out in the resolution, which was sent to Gov. Frank C. Meriam, that a large part of the cost of the project will be paid by means of gasoline taxes which the law requires the oil industry to collect at its own expense for the benefit of the public and that the continuance of the ability of the industry to pay the huge taxes levied upon it depends upon its marketing the low gravity oils which are used largely for asphaltic concrete.

### *Wisconsin Assn. Joins In 6.6 Complaint*

*By Teletype*

MILWAUKEE, Nov. 8.—The Wisconsin Petroleum Assn. filed a complaint last week, with the Interstate Commerce Commission protesting the 6.6 pounds per gallon estimated weight basis by railroads to determine freight charges on gasoline.

The Wisconsin complaint, patterned after the one filed by the Illinois Petroleum Marketers Association, asks for an adjustment of the weight basis and for reparations on overcharges paid the past three years.

The complaint, according to R. L. Brecke, association secretary, will name the refiners handling shipments, as well as the list of association members and non-members who have before the commission.
joined the association's action

## Indiana Standard Enters 6.6 Case

N. P. N. News Bureau

WASHINGTON, Nov. 8. — Standard Oil Co. (Indiana) has been granted permission by the Interstate Commerce Commission to intervene in three cases involving the 6.6 pounds per gallon estimated weight of gasoline and other petroleum products used by railroads in determining freight charges.

In all three of its petitions, Standard asked that, should the ICC find the estimated weights, rates and charges unlawful, as alleged, the defendant railroads be ordered to pay Standard reparations on its shipments amounting to the difference between the actual charges assessed and the charges which would have been assessed under "lawful" weights and rates.

No indication was given of the stand Standard would take when the cases are brought for hearing.

The cases intervened in are those brought by Anderson-Prichard Oil Co., and associates: Tankar Gas, Inc., Minneapolis, and the Indiana Independent Petroleum Assn.

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# Selling Two Carloads of Tires In 6 Stations in Small Towns

WYACONDA, MO.

*By* E. L. BARRINGER
N. P. N. Staff Writer

PICK up a road map to look for Wyaconda, Missouri, as this writer did in making a trip to the Morgan Oil Co.'s headquarters, and you will find a small circle way up in the northeast part of the state. Then to the west you will find such towns as Memphis, Downing and Lancaster, and to the south in the next county, Knox City.

In this territory, all small towns scaling down to 400 population, E. B. "Gene" Morgan's oil company last summer sold two car loads of tires.

Personal selling by the man at the pump, where tirebuyers must come to purchase gasoline, accounted for this large sales volume in a community of small towns, in a farming area specializing in grain and sheep, and in a territory where most of the automobiles are five years or older. There was competition also from mail order houses, one of them having local distribution through a service station, and from a nearby large city that attracts trade for miles around.

Back of this successful personal selling were adequate stocks in the service stations, the management's recognition of its responsibility to move the tires and the setting of the stage for each station salesman to be a David Harum.

Last January Mr. Morgan bought a full car load of tires. He thought the price was right, and that tires offered an opportunity to make additional profits in 1937. The second car load was ordered in small lots, to fill in depleted inventories.

The initial car load order, Mr. Morgan believes, was a double stimulant to sales. First, it enabled stations to stock and display a lot of tires, not just four or five, thus giving prospective customers the impression the stations really were serious about selling tires. Second, with all that rubber on the shelf, Mr. Morgan had that pressure behind him to devise merchandising plans to convert the tires into cash.

Every station salesman was given a retail price list and the cost of the tires to the Morgan Oil Co., and out they went to sell rubber. Each salesman became a potential David Harum, making his own dickers, and right in the driver's seat with all the necessary authority to close the deal. Where competition was severe, as on a mail order house deal, the salesman told the customer he was getting the wholesale price, and that the profit would be made in selling the traded-in tires.

Each salesman also was in full authority in taking in tires on a deal and disposing of the used rubber. At one station such a brisk trade in used tires was worked up that the salesman had to enter the market and buy used tires outright to fill his demands.

All this volume was sold at company operated service stations, with the exception of the station at Knox City, which is the only one of six outlets under lease. Most of the sales were made during the summer, June through September, and prior to the selling season the tire manufacturer put on a sales school.

Mr. Morgan's merchandising ability played its part in selling the tires, as in selling other merchandise, as is illustrated by the handling of the situation in one station. This station previously had never sold enough tires to justify being called a tire outlet. So Mr. Morgan told the salesman that if in June the station sold $250 worth of tires he could see a ball game in St. Louis at the expense of the Morgan Oil Co.

Well, the next month the salesman sat in Sportsman Park in St. Louis to see Dizzy Dean and Carl Hubbell clash. June tire sales were $325.

That was not a flash in the pan, either. The same station's tire sales in July were $344, in August $429, and in September $294.

Back of this selling of tires, and a long list of other accessory merchandise, is the factor of Mr. Morgan being retail minded. The company, started in 1913, always sold its own gasoline brand and did its own advertising. With the change in service station business he recognized the need for selling accessories. After all, gasoline brought motorists to his stations, as they had to buy gasoline or else stop driving, and when they are on the drives he sells them accessories.

Mr. Morgan, in addition to being alert to selling opportunities, also has the knack of getting along with his men and developing their sales abilities. Within a day he can drive to every one of his stations. During these visits he never clashes or scolds his men. If sales volume is not satisfactory he endeavors to build it up through encouraging the men to sell more, rather than using other methods.

In one case he urged a salesman to sell off the station drives, to invite folks he met on the street, in the restaurant or anywhere to patronize the station. Reports came back that the chap had used some strong language, not the kind for parlor conversation, and ending up with something like "and I want to see that face of yours in my station."

"That is all right," Mr. Morgan commented. "That fellow talked the language of his customer, and his business increased."

While most of the accessory merchandise in Morgan stations is similar to that handled in many one-stop stations, the company is now beginning to branch out into automobile replacement parts.

Mr. Morgan is going on the theory that many small town garages no longer carry adequate stocks of parts. Consequently motorists either wait until the parts are received from some parts job-

### Sells Automobile Replacement Parts

The Morgan Oil Co., independent marketer in northeastern Missouri, is selling carefully selected automobile replacement parts at its stations, of the type that can be quickly installed.

Items carried include mufflers, ring and pinion gears, radiators and radiator parts, generator parts and sockets for Ford wishbones. They are sold principally in connection with lubrication work.

E. B. Morgan, proprietor, stocked these items on the theory that many small town garages don't carry adequate stocks.

### Four Requisites For Lubrication Work

Four things are necessary to offer efficient and profitable lubrication service at oil company stations, is the theory of the Morgan Oil Co.

They are proper equipment, proper lubricants, men who know lubrication and men who like to lubricate cars.

The first two are available to every marketer. The last two can only be secured through painstaking work on the part of the individual at the head of the company.

ber in a nearby city, or else defer replacements. So Morgan stations have been considering this type of automobile market and have started selling some parts, of the type that can be installed quickly.

Three mufflers were stocked, and sold so quickly that mufflers now are a regular line of parts. Other items are ring and pinion gears, radiators, generator parts and rebuilding materials and sockets for Ford wishbones.

The selling of parts, and accessories, is closely linked with lubrication, in Mr. Morgan's opinion. For illustration he points to the checking of the wishbone socket during lubrication work under the car and the developing of sales.

Efficient, profitable lubrication service he believes has four requisites. They are, proper equipment, proper lubricants, men who know lubrication, and men who like to lubricate cars. The first two he dismisses as being available to every oil marketer, as lubricants and equipment are on the market and everyone can buy them. The last two factors, involving men, he believes is the secret of a lubrication department with proper equipment and products.

Performing a good job is Mr. Morgan's way of building lubrication business. In one town 54 cars were lubricated during September, and customers were attracted for miles around. These jobs were sold at $1 each, against 50 and 75-cent competition. And 40 or more lubrications a month are common in other towns also.

New portable chassis lubrication equipment is on the driveway at some Morgan Oil Co. stations to help sell lubrication jobs.

The equipment provides an attraction for customers, and brings inquiries about lubrication service. It is also used for demonstrations, with the salesman shooting a slug of grease almost across the street.

The Morgan Oil Co. was started in 1913 by Morris Morgan, father of the present manager, E. B. Morgan.

The elder Mr. Morgan had manufactured ax handles but the timber gave out in northeast Missouri. To keep teams busy during the summer Mr. Morgan began marketing kerosine, coal oil in those days, and that led to the present oil jobbing business.

Back in those days the farmer paid $2 a barrel, 5 cents a gallon for the kerosine.

**Adds Restaurants**

Morgan Oil Co. is rebuilding a station in Downey, Mo., replacing curb pumps with a drive-in station, a lubrication department and a restaurant.

The restaurant department is rented to a young couple, who will take care of the gasoline pumps late at night, offering 24-hour service.

Several other Morgan stations are to be rebuilt, each to have restaurants as a means of bringing more customers into the stations.

# Greeting Customers by Name Builds Repeat Business

COLORADO SPRINGS, Col.

The ability to remember names of customers has moved many a gallon of gasoline through the pumps for Jack Schekall, manager of the Adams Motor Co., Colorado Springs, and a $100 prize winner in the recent Standard Oil Co. of Indiana contest for letters on what station services motorists desire.

Schekall has been station manager for Adams Motor for 19 years, and has built a local reputation for remembering customer's names. This accounts for more repeat business for him than any other thing, Jack claims, and the secret of his acquiring this gift for remembering names is repetition, impression and association of names.

Jack has found it easier to remember when he repeats the name, verbally and by writing it out, so that he memorizes the sound and appearance. Sometimes the impression made by the customer's name helps also. And Jack also tries to associate the name with some incident that happened while the customer was in the station to aid his memory.

"I still forget sometimes," said Jack, "but I've been trying hard to remember for so many years that I somehow do it without any effort now.

"My biggest satisfaction is in seeing the surprise and pleasure on the part of folks who don't expect me to remember their names.

"Another thing I have learned is not to become familiar with customers. I like to call a man 'mister' even though I have known him intimately for years. It is just plain good business and has paid us big dividends."

Jack Schekall, station manager for Adams Motor Co., Colorado Springs, right, receiving $100 check in Standard of Indiana contest, from J. W. Hydnman, service station manager for the oil company at Denver. C. H. Troeger, Colorado Springs field manager for Standard, is in the center. One of Jack's customers wrote a $100 letter in the contest on what services motorists like, so Jack, who helped the customer with the letter, received a similar award

**Auto Association Meets Nov. 19 in New York**

WASHINGTON, Nov. 5. — Mounting motor taxes, misuse of funds through diversion, the national dearth of adequate parking facilities, and the rising tide of traffic congestion are the principal problems to be wrestled with when representatives of organized motorists gather in New York City Nov. 19 and 20 for the annual convention of the American Automobile Assn., it is announced from A.A.A.'s Washington office.

Thomas P. Henry, Detroit, president of the association, commented on the rapid growth of the automobile as a "necessary means of daily transportation", and added:

"This rapid development has brought with it many problems that are still far from solution. The tax load has grown to more than a billion and a half dollars; diversion and mis-spending of motor tax revenue have reached alarming proportions; the accident problem continues to grow more serious, as do the antics of wild-eyed zealots who would willingly throttle the growth of motorized transportation in order to foster half-baked schemes; congestion daily grows worse, and parking space is deplorably inadequate; the short-sighted policy of erecting artificial barriers at state borders has not yet been completely eliminated; and highway and street development is lagging far behind the needs and requirements of the modern motor vehicle. This situation certainly calls for organized action —now."

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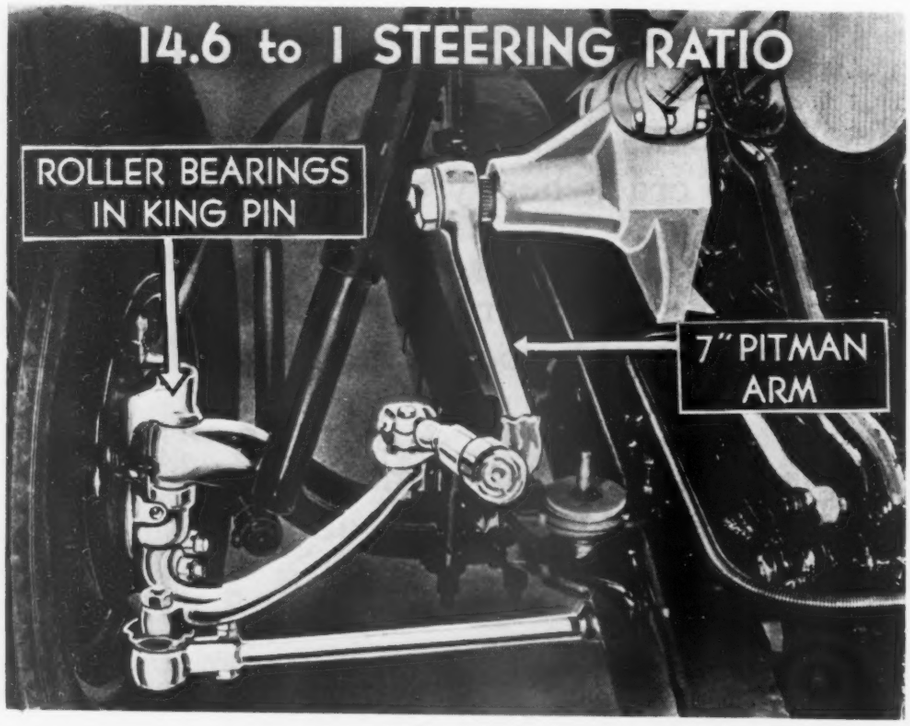
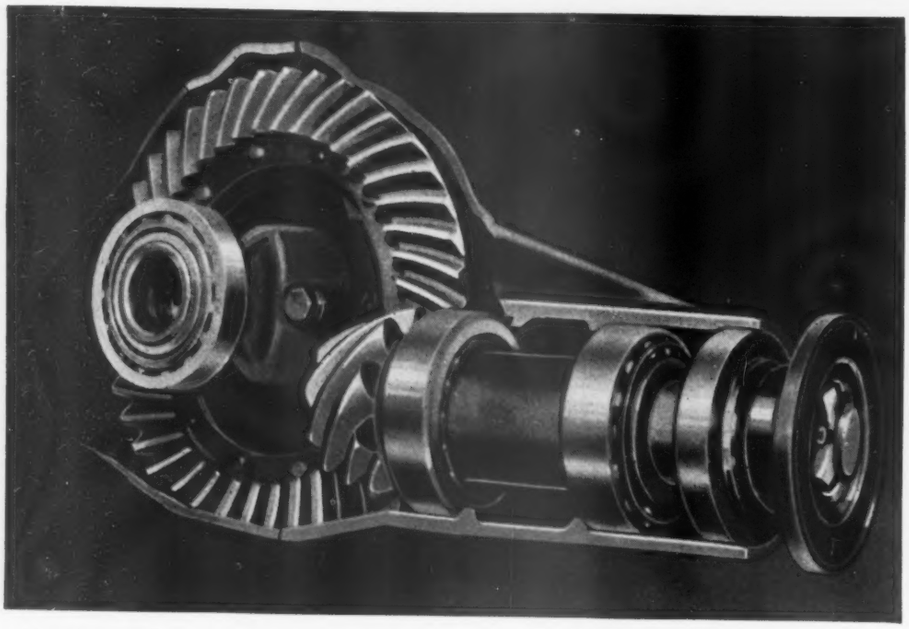
# 1938 PLYMOUTH AND DODGE . . .

## Both Have Identical Servicing Requirements: Drain Period Increased: Hypoids Are Continued




Improvements in the Plymouth steering mechanism include a shorter Pitman arm, now seven inches, and the addition of roller bearings at the upper ends of the king pins.



Hypoid rear axles, with longer and stronger teeth, are continued on the Plymouth and Dodge for 1938. An SAE 90 hypoid lubricant is now recommended for all seasons. Draining, flushing and refilling is now recommended every 10,000 miles. It was formerly required every 6000 miles

*By* JOHN W. THOMPSON
N. P. N. Staff Writer

THE Chrysler Corp. has again simplified matters for the service station attendant by making the 1938 Plymouth and Dodge identical in their lubrication requirements. These cars match point for point and capacity for capacity, with the exception of the cooling system capacities.

Plymouth continues with its 82-horsepower engine, while the rating of the Dodge engine remains at 87 horsepower. An oil filter is used on both engines, excepting the standard or "Business" model of the Plymouth.

Both cars have a new hood design with fixed side panels, only the top sections swinging open for routine service of oil and water. The hood handle remains where it was, on the side panel; but it is now a remote control, tightly locking the top section into place or opening it partially for the fingers to lift it the rest of the way.

Both Plymouth and Dodge retain their hypoid rear axles for 1938, now designed with stronger and longer gear teeth, and both cars now have the handbrake lever located under the cowl at the center of the instrument panel, and off the floor.

On the Plymouth the steering gear ratio has been reduced from 16.4 to 14.6, and the Pitman arm has been cut to 7 inches. This combination gives an overall steering ratio of 17.6 to 1, which represents 5 per cent faster steering than last year. For 1938, Plymouth has added small roller bearings to hold the upper end of the king pins.

A new and larger Plymouth generator has a peak charging rate as high as 30 amperes, sufficient to carry the ever-increasing load found on the new cars today. The generator has an improved ventilating fan.

The Plymouth engine, with a compression ratio of 6.7 to 1, has a fuel pump of increased capacity which it is claimed will aid in preventing vapor lock. The capacity has been increased from 140 to 165 pints per hour.

Certain Dodge engine features have been retained, including the full length water jackets, steel valve inserts, pressure lubrication, aluminum pistons and automatic choke and spark advance. There is now also an exhaust silencer of new construction and a new type compression piston ring.

Improvements have been made in the Dodge clutch mechanism. The release

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bearing is larger and its self-lubricating capacity is greater. The driven clutch disc has a baffle to prevent oil from reaching the friction discs.

From a lubrication standpoint, probably the most significant change on the 1938 Plymouth and Dodge pertains to engine oil drain periods and recommendations.

Crankcase drain periods for these cars are now recommended every 1500 to 2000 miles in winter and every 2500 to 3000 miles in summer. Formerly it was recommended that oil be changed at 1000-mile intervals in winter and every 1500 miles in summer. The new recommendations are to be observed when "driving conditions are normal." In the winter, when temperatures are extremely low for an extended period, and when driving is done only a few miles at a time, the car owner is urged to have the crankcase drained every 500 miles.

The oil filter, standard equipment on all Dodge models and on the DeLuxe Plymouth, contains a cartridge which is to be changed every 8000 miles.

In determining the proper seasonal grade of engine oil to use, a series of lowest anticipated temperatures are given which indicates the limit for the use of a certain grade of oil, as follows:

Not lower than 70 degrees.....SAE 40
Not lower than 32 degrees .....SAE 30
Not lower than plus 10 degrees.....20-W
Not lower than minus 10 degrees....10-W
Not lower than minus 25 degrees.....
.....10-W plus 10% kerosine

Last year the lower limit for the use of SAE 30 was 40 degrees. The use of SAE 20 has been dropped from the engine oil recommendations for 1938.

The transmission and steering gear, requiring seasonal changes, have identical lubricant recommendations. They take an SAE 140 or 160 fluid gear lubricant for summer, and an SAE 90 low cold test lubricant for winter. The SAE 140 recommendation is new this year. Care should be taken that the steering gear body is not over-filled, as it may overflow the steering column jacket.

The clutch release bearing is prelubricated at the factory and requires no further lubrication attention. The universal joints are also lubricated upon assembly and do not require additional lubrication for 30,000 or 40,000 miles of ordinary driving.

The hypoid rear axle now takes an SAE 90 hypoid lubricant for both summer and winter, except where temperatures average zero degrees or below for an extended period. Then an SAE 80 hypoid lubricant is recommended. This differs somewhat from the 1937 rear axle recommendation, where for summer it was specified that an SAE grade of powerful extreme pressure lubricant as specified by the refiner be used. Also last year an SAE 110 powerful e.p. lubricant was recommended for winter where only moderately low temperatures were encountered.

The rear axle should be drained and flushed out thoroughly with flushing oil (not kerosine) every 10,000 miles. Formerly this was required every 6000 miles. The attendant is cautioned against mixing one brand of hypoid lubricant with another brand. To drain the rear axle, remove the two bottom cap screws which hold the carrier to the housing. Both front and rear wheel bearings are to be lubricated with a short fibre wheel bearing grease, medium. On the front wheel bearings this should be done every 6000 miles.

On the rear wheel bearings the service is required every 12,000 miles. Here the plugs should be removed and a temporary pressure gun fitting installed. Not more than one half ounce of lubricant should be put into the rear wheel bearing, as an excess amount might be forced through the oil seal and onto the brake lining. The plugs should be replaced after the lubrication job is completed.

On both the Plymouth and Dodge 7-passenger sedans there is a propeller shaft center bearing fitted with an oil cup. This takes an SAE 30 engine oil in summer and 20-W in winter. It should be lubricated every 6000 miles. This is a continuation of last year's design on this model, which employs a two-piece propeller shaft joined through a rigidly mounted center bearing. At the beginning of the 1937 production this was a 1000-mile lubrication point, but early in 1937 it was changed to 6000 miles.

Spring shackles and steering connections are 1000-mile points, and take a semi-fluid chassis lubricant. The locations of the points are practically the same as on the 1937 models.

Generator, distributor, hand brake linkage, water pump and air cleaner are to be serviced every 2000 miles. The distributor, which was formerly equipped with a pressure gun fitting, now has a grease cup, but takes a short fibre grease as before. The water pump has a pressure gun fitting and takes "water pump grease only."

In addition to the front wheel bearings, other 6000-mile points include pedals and pedal linkage which take an engine oil.

With the exception of the cooling system, capacities of the Plymouth and Dodge are identical and remain unchanged from last year. Capacities follow:

Crankcase refill .....5 quarts
Rear axle ..... 3¼ pints
Transmission ..... 2¼ pints
Fuel tank ..... 16 gallons

The cooling system of the 1938 Plymouth has a capacity of 14 quarts, a reduction of one quart from 1937. The 1938 Dodge cooling system capacity has also been reduced one quart, and is now 15 quarts.

## N. P. N.'s Madison Trial Bulletins Attract Jobbers

Teletype bulletins from the Madison courtroom on the course of the "conspiracy" trial, posted in National Petroleum News exhibit booth during the convention of the National Oil Marketers Assn. in Chicago, Oct. 12, 13 and 14, attracted much attention from the oil jobbers there. After the sessions, there was a rush for N.P.N.'s booth to see what had transpired in the trial

ADVERTISING PAGES REMOVED

# Simplify Heating Oil Market By Reducing Number of Grades

## *API Speaker Recommends Two Grades For Domestic Heating —Describes a Market That "Has Hardly Been Furrowed."*

CHICAGO

FUEL oil distributors and the oil burner industry can aid refiners in producing an adequate supply of fuel oil at a fair price through an earnest endeavor to reduce the number of fuel oil grades required. Such is a principal conclusion of a paper "Fuel-Oil Production and Use" presented at the American Petroleum Institute annual meeting this week in Chicago by R. T. Goodwin, New York, of Shell Union Oil Corp.

Two domestic heater grades are recommended, and two grades for commercial burners. They are:

For sleeve and pot-type burners and the few power burners requiring No. 1 oil, a light fuel of kerosine quality.

For domestic burners a single grade accomplished by improving the present No. 3 grade.

For commercial burners, one grade replacing present Nos. 4 and 5 that could be used without pre-heating, and a heavier fuel for industrial purposes.

As for the future of domestic oil heating the paper's conclusion states "The market for domestic oil heating, the greatest contributor to human comfort and convenience, has hardly been furrowed."

Changes in distribution of fuel oil in the past three years are indicated in the opening of Goodwin's paper with heating buildings in first place in 1935 for the first time with 21 per cent of total sales. Oil for steamships was second with 20.4 per cent. Combined sales of fuel oil and range oil in 1936 were 126,541,000 barrels, against 25,000,000 barrels in 1926.

"It should be noted that the consumption has not materially increased in industries using heavy fuel oil on an approximate coal-oil parity basis. This indicates that in certain services where it is possible to change from a liquid to solid fuel, as in large manufacturing plants, power plants, etc., the consumption has not increased as rapidly as fuel for heating of buildings," the paper stated.

Goodwin's paper then reminds oil men that the coal industry, especially anthracite producers, "are making a strong bid for household heating through the introduction of residential stokers," and points out that sales of domestic stokers increased from 7000 in 1932 to 76,000 in 1936.

**WHO USES FUEL OIL**

Gas oil and fuel oil deliveries by uses, 1934-1936
Source, U. S. Bureau of Mines. Figures in barrels

| | 1934 | 1935 | 1936 |
|---|---|---|---|
| Heating buildings | 60,822,000 | 76,853,000 | 99,249,000 |
| Steamships | 69,262,000 | 74,581,000 | 89,478,000 |
| Manufacturing | 56,942,000 | 63,576,000 | 65,000,000* |
| Railroads | 52,581,000 | 55,651,000 | 59,290,000 |
| By oil companies, for fuel | 47,404,000 | 48,116,000 | 50,000,000* |
| Exports and shipments | 28,605,000 | 28,948,000 | 34,280,000 |
| Range oil | 15,756,000 | 21,526,000 | 27,292,000 |
| U. S. Army, Navy and miscel. | 20,167,000 | 23,561,000 | 25,000,000* |
| Gas and power plants | 23,143,000 | 23,647,000 | 24,000,000* |
| Total | 374,682,000 | 416,459,000 | 473,589,000* |

*Estimates.

After taking up gas consumption, diesel fuel demand, the refiners' changing horizon, source of fuel oils, and production of distillate fuels the paper notes that, since 1930, the number of motor vehicles in this country increased 7 per cent, motor fuel consumption was up 22 per cent, yet domestic oil burner installations increased 103 per cent and fuel oil consumption increased 113 per cent.

"A comparison of these figures shows that the domestic heating oil demand has increased eight times as fast as the gasoline demand," the paper reminded.

"Each domestic oil burner is of far greater importance to the oil industry in the matter of total petroleum products consumed than is each motor car," the paper continued. "A motor car consumes an average of 700 gallons of gasoline, while the average oil burner consumes 48 barrels, or approximately 2000 gallons of fuel oil."

Following are published nine sections of Goodwin's paper presenting material of particular interest to fuel oil distributors.

* * *

R. T. Goodwin, Shell Union Oil Corp., New York

### BY R. T. GOODWIN*

**Location of Oil-Burner Market**

The burner markets are changing their geographic location, especially since 1929.

Today, the prime domestic-burner market includes New England, middle Atlantic states (except western Pennsylvania), the middle west (except Ohio), and Washington and Oregon. These sections represent from 82 to 85 per cent of yearly domestic burner sales. Permits for burner installations issued for this year indicate that the trend of increased sales is still along the Atlantic seaboard.

If this same trend holds over the next four years, which shows 80 per cent of the burners being sold in this area, then there will be a demand for an additional volume of approximately 50,000,000 bar-

*Shell Union Oil Corp., New York.

rels of distillate fuel per year for distribution along the Atlantic seaboard, north of Richmond, Va., and east of Rochester, N. Y.

The sale of domestic burners has been further accelerated by the rapid decrease in average retail prices since 1929. The Fuel Oil Journal reports that the average price for a conversion burner installed in 1929 was $692, while this price has gradually decreased until the average price in 1936 was only $304, and a complete boiler burner unit could be purchased and installed for $627.

A regional breakdown of the 1936 heating-oil sales indicates that the middle Atlantic states (New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia) constitute the most important market for heating oils, and that this area accounted for nearly 39,000,000 barrels, or 39.3 per cent of the 1936 total. The 1936 deliveries in this region represent a gain of 28.7 per cent over the 1935 sales of 30,279,000 barrels.

The north central group of states (North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Wisconsin, Illinois, Indiana, Michigan, Ohio, Kentucky, and Tennessee) wherein are located a number of important urban centers of population, such as Chicago, Detroit, St. Louis, Minneapolis, and Kansas City, ranks second as a consuming area for heating oils. Sales of heating oils in these states increased from 19,730,000 barrels in 1935 to 27,015,000 barrels in 1936. The latter total is 27.2 per cent of all heating-oil sales for the year, compared with 25.7 per cent in 1935.

The New England states stand third as a market for heating oils; they required 17,506,000 barrels in 1936, compared with 14,040,000 barrels in 1935. The remaining regions, i.e., south central, Pacific coast, south Atlantic, and Rocky Mountain, are of less importance as consuming areas for heating oils, and rank in requirements in the above order. It should be noted, however, that the south central states became the fourth most important market for heating oils in 1936, supplanting the Pacific coast area for the first time.

The following comments regarding the heating-oil market in the Pacific coast area are credited to E. T. Knudsen of the San Francisco office of the U. S. Bureau of Mines:

"Demand for heating oils constitutes approximately 6 per cent of the total domestic fuel-oil demand in the Pacific coast area (California, Oregon, Washington, Arizona, and Nevada) and is relatively of much less importance than in the balance of the United States as a whole. The comparatively mild climate and the large supply of natural gas in California tend to retard the growth of the use of oil for heating purposes, but during 1936 it is reported that sales of domestic oil burners increased appreciably in the Pacific coast area, particularly in Oregon and Washington. In the Pacific coast area it was not possible to obtain segregated heating-oil data showing the sales of lighter grades 1 to 4 and heavier grades 5 and 6, as was done in the balance of the country, partly because the Pacific coast specifications of grades 1, 2, 3, and 4 do not coincide with the eastern specifications, as grade 3 overlaps grades 4 and 5, and partly because the reporting companies do not yet consider this class of business of sufficient importance on the Pacific coast to warrant the compiling of segregated data. Therefore, the sales by grades have been estimated."*

### Sale of Fuel-Oil Burners

As is well known, the sales and operation both of domestic and industrial burners have rapidly increased since 1921. The number in operation has practically doubled since 1929, showing the industry to be almost "depression-proof." The reported number of domestic-burner sales for 1936 was 220,000, or an increase of 40 per cent over the 1935 sales of 156,700. These results look imposing, but the fact remains that they have sold only one oil burner to every twelve homes with central-heating plants in the United States.

*See Table 1 for regional distribution of heating oil sales, 1934-36. This table shows an increase of 29.1 per cent in 1936 over 1935. The same table also shows an increase of 26.8 per cent in range oil sales during the same period.

Last year the refrigerator industry sold 1,892,378 units, or approximately nine times the number of domestic oil burners sold. For the first seven months of 1937, some 1,898,656 refrigerators were sold, an increase of 15.2 per cent over the same period last year. The new burner orders for the first eight months of 1937 totaled 118,821, as against 102,442 in the 1936 period; and shipments amounted to 116,159, as against 99,866 in the 1936 period. This indicates the total sales this year will exceed the 220,000 burners sold in 1936.

### Future Burner Sales

The U. S. Department of Commerce recently completed a survey[1] of heating installations in 64 cities, and found that only 3.9 per cent of all one-family houses were heated by oil. In this survey they covered 1,536,806 homes. They extended this survey to 1,931,053 residential structures and apartments in the same 64 cities, and found that 85,702 or 4.4 per cent were heated by oil. These figures do not represent power burners alone, but in some areas the 4.4 per cent included range-oil burners.

The same survey showed the following percentages of oil-burner installations against total structures in various geographical areas:

| Area | Per cent oil burners to total structures | No. oil burners |
|---|---|---|
| New England | 19.5 | 33,819 |
| Middle Atlantic | 1.6 | 2,038 |
| East North Central | 1.1 | 4,190 |
| West North Central | 7.0 | 21,380 |
| East South Central | 0.1 | 162 |
| West South Central | 0.2 | 331 |
| Mountain | 1.4 | 1,276 |
| Pacific | 6.7 | 18,535 |
| Total | 4.4 | 85,702 |

No one expects that the oil-burner market will ever become as thoroughly saturated as has the automobile market. The automobile has become thoroughly established as a necessity in the minds of many families, while the domestic oil burner would often be classified as luxury in areas where coal is available at a very low price. Our definition of a luxury, however, is subject to rapid change; for a luxury today is a necessity tomorrow. The modern kerosine-burning space heater is an outstanding example, as evidenced by the fact that during the past year 391,696 space heaters were sold in this country. Each space heater will consume about 400 gallons of range fuel or kerosine per year. During 1936 the range burners and space heaters consumed over 27,000,000 barrels of fuel.

Shipments of distillate burners (range and space burners) for the first eight months of 1937 were 199,216, compared with 155,062 in the same period for 1936. On this basis, the total 1937 sales will approximate 500,000 units, and will consume some 5,000,000 additional barrels of fuel oil per year.

In most cases these burners are used in low-cost homes where central-heating plants are not available. The number of these burners has increased from 127,197 in 1932 to 970,853 in 1936, which certainly demonstrates that this type of heating with fuel oil is not considered

**TABLE 1**

**Regional Distribution of Heating and Range Oil Sales, 1934-1936**

| Region | Regional Distribution of Heating-Oil Sales, 1934-1936* (Thousands of Barrels of 42 Gallons) 1934 | 1935 | 1936 | Per Cent Increase '36 Over 1935 |
|---|---|---|---|---|
| Pacific Coast | 4,347 | 5,586 | 6,525 | 16.8 |
| Rocky Mountain | 246 | 319 | 400 | 25.4 |
| North Central | 16,324 | 19,730 | 27,015 | 36.9 |
| South Central | 4,180 | 5,260 | 6,634 | 26.1 |
| New England | 10,793 | 14,040 | 17,506 | 24.7 |
| Middle Atlantic | 23,497 | 30,279 | 38,956 | 28.7 |
| South Atlantic | 1,435 | 1,639 | 2,213 | 35.0 |
| Total United States | 60,822 | 76,853 | 99,249 | 29.1 |

| Region | Regional Distribution of Range-Oil Sales, 1934-1936 (Thousands of Barrels of 42 Gallons) 1934 | 1935 | 1936 | Per Cent Increase '36 Over 1935 |
|---|---|---|---|---|
| Pacific Coast | 459 | 548 | 596 | 8.8 |
| Rocky Mountain | 43 | 67 | 80 | 19.4 |
| North Central | 951 | 1,522 | 1,944 | 27.7 |
| South Central | 331 | 937 | 1,222 | 30.4 |
| New England | 9,912 | 12,530 | 14,505 | 15.8 |
| Middle Atlantic | 3,869 | 5,208 | 8,036 | 54.3 |
| South Atlantic | 191 | 714 | 909 | 27.3 |
| Total United States | 15,756 | 21,526 | 27,292 | 26.8 |

*Note* 1.—All the 1936 items shown in this report are preliminary, and are subject to revision.

*Note* 2.—The data for California, Oregon, Washington, Arizona, and Nevada were compiled by E. T. Knudsen, assistant economic analyst, U. S. Bureau of Mines, San Francisco, Calif.

*By A. T. Coumbe, associate economic analyst, Petroleum Economics Division, U. S. Bureau of Mines.

**NAPHTHAS · FUEL OILS · DIESEL FUELS**

**KEROSENE · GASOLINE · INDUSTRIAL**

**AUTOMOBILE LUBRICANTS**

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*Nine strategically located* **SHELL** *Refineries*

**CALIFORNIA**

COALINGA, DOMINGUEZ, MARTINEZ, WILMINGTON

**GULF COAST**

HOUSTON, TEXAS; NORCO, LA.

**MID-CONTINENT**

EAST CHICAGO, IND.; WOOD RIVER, ILL.; ARKANSAS CITY, KANSAS

a luxury. A further proof is a recent statement from a nationally-known burner company that "60 per cent of the automatic-heating-equipment sales in 1936 were made to buyers with annual incomes between $1,800 and $4,500."

A further evidence that burners are being installed in smaller homes is shown by a recent study of 100 installations which revealed that 90 per cent were for capacities of less than 1½ gallons per hour, while a few years ago the average would have been 2½ gallons.

**Grade of Fuel Demanded for Burners**

From the data collected on quantities and grades of fuels used in the past, we obtain some indication as to future demands; but the two important factors which really determine the trend of the fuel-oil business are: first, the type of units the oil-burner manufacturers are selling and, second, the type of fuels refiners are developing for use in these units.

After all, it is the type of burners that determines the grade of oil that must be used. We have seen changes in burner construction and changes in trend of popularity of different types of burners which caused the refiners to change the fuel-oil specifications to meet that particular demand. Going further than this, the refiners must analyze the course of development in the burner business, and point their efforts along the indicated lines. Such studies are quite essential when considering that many times changes in refinery operations require entire new equipment, and such changes consume several months' work in design, construction, and initial operation.

Also, the refiners cannot justify the purchase of such expensive equipment unless the demand for a special product can be projected over a satisfactory payout period.

An outstanding example of the type of burner in popular demand, causing the refiners to change their entire fuel-oil schedule, occurred between 1932 and 1936, when the rapid growth of range or blue-flame burners necessitated the refiners increasing their kerosine yields to meet this demand. During the year 1936 some 390,000 range and space heaters were sold in this country, and the average consumption of kerosine was about 400 gallons; or, roughly, these stoves required 4,000,000 additional barrels of kerosine per year.

A table shows that the total consumption of range fuel is more than 27,000,000 barrels per year. This demand for range fuel also changed the classification of fuels on the eastern seaboard, as formerly kerosine was used largely for illuminating purposes and there was available a No. 1 fuel oil which met the "commercial standard specifications"; but, as is well known today, the No. 1 fuel oil on the east coast was changed to a kerosine specification suitable for operation in a blue-flame or range burner.

The type of burners in use by the consumers will designate the grade of fuel that the refiner and distributor must handle. As is well known, the Underwriters' Laboratories in Chicago tests the various makes and models of burners and approves them for safety when using a particular number or grade of fuel oil. The "1937-38 Specification Chart of Oil Burners," Fuel Oil Journal, lists oil burners of 352 trade names and makes, and involves some 1,108 models. This list, of course, includes burners which are several years old, thus accounting for the large number of models. The percentage of these models recommended for the various fuels is shown in Table 2.

If we consider separately the burners designated for domestic grade fuel, viz., fuel oils Nos. 1, 2, and 3, there is a total of 991 models. Again, grouping those designated for fuel oils No. 2 and 3 in one group, it shows that 88.1 per cent could probably be operated on a single grade of fuel, and the balance could use a kerosine grade No. 1 fuel. Another interesting fact brought out by this table is that only 13 models, or 1.13 per cent of the burners, are designed for No. 4 fuel. This figure is much lower than indicated by the volume of No. 4 fuel which has been distributed for domestic use, especially on the Atlantic Seaboard. The No. 4 grade is not approved for domestic use by the underwriters.

**TABLE 2**

**Type Fuel Recommended for Various Models**

| ——Models—— | | Recommended |
|---|---|---|
| Per Cent | Number | for.....Fuel Oil |
| 10.23* | 118 | No. 1 |
| 10.06* | 116 | No. 2 |
| 65.65 | 757 | No. 3 |
| 1.13 | 13 | No. 4 |
| 4.34† | 50 | No. 5 |
| 8.59† | 99 | No. 6 |

*Of these models, 20 show recommendations for either No. 1 or No. 2.
†Of these models, 25 show recommendations for either No. 5 or No. 6.

The following figures[2] show the conversion-burner output by types from 1932 to 1936:

| | 1932 | 1936 | Average for 5 Years |
|---|---|---|---|
| | % | % | % |
| Vaporizing | 9.0 | 1.4 | 3.5 |
| Vertical rotary | 19.0 | 9.3 | 14.6 |
| Horizontal rotary | 5.0 | 1.0 | 2.5 |
| Pressure | 67.0 | 88.3 | 79.4 |

These figures show that a combination of horizontal-rotary and pressure-type burners would total about 90 per cent.

In many cases demands are made on the fuel supplier in order to obtain some selling advantage for a particular burner, such as a lower fuel price through a substitution of grades. The supply position has been complicated due to the use of gravity designations for fuel-oil grades rather than the use of "commercial standard numbers." This production with numerous grades was carried to a climax a few years ago; in fact, some of the pricing publications would price 16 or 18 different grades of fuels, each separated by two points in gravity.

Fortunately, most of the country has adopted the "commercial standard" designation for producing and marketing fuel oils. The only exception to this today is perhaps the Pacific coast, where the nomenclature is somewhat confusing due to the fact that in many cases their domestic grade of fuel corresponding to No. 3 commercial standard is called diesel fuel.

There is one definite way in which the oil-burner industry and the fuel-oil distributors can assist the refiners in producing an adequate supply of fuel oil at a fair price. This assistance should be in the form of an earnest endeavor to reduce the number of grades of fuel now demanded for tank-wagon delivery. It is well known that we are operating more than 28,000,000 automobiles in this country on two primary grades of gasoline. It should be possible to operate all of the 350 odd makes of domestic oil burners on two grades of fuel oil.

The recommended grades which should suffice for all of the different makes of domestic burners would be:

1. A light fuel oil of kerosine quality for sleeve and pot-type burners and those few power burners which require a No. 1 grade.

2. A grade for domestic burners shown above as vertical-rotary, horizontal rotary and pressure type. This could be accomplished by improving the present No. 3 grade by reducing the boiling range and having a carbon-residue maximum. This grade would suffice for about 90 per cent of the burners.

3. This grade would consist of a residue fuel suitable for commercial burners, and could have rather wide specifications so as to meet the particular needs; would replace the present 4 and 5 grades, and could be used without pre-heating.

It is somewhat more difficult to lay

**TABLE 3**

**Comparison of Fuel Oil Production during Heating Season For Last Three Years**
**(Figures in Thousands of Barrels)**

| Months | Production 1934-35 | Production 1935-36 | Increase 1935-36 Over 1934-35 (Per Cent) | Production 1936-37 | Increase 1936-37 Over 1935-36 (Per Cent) |
|---|---|---|---|---|---|
| **Gas Oil and Distillate Fuel:** | | | | | |
| November | 8,044 | 8,598 | 6.89 | 11,201 | 30.27 |
| December | 8,136 | 9,885 | 21.50 | 11,875 | 20.13 |
| January | 7,696 | 10,587 | 37.56 | 13,319 | 25.80 |
| February | 7,001 | 11,125 | 58.91 | 11,206 | 0.73 |
| March | 8,678 | 10,262 | 18.25 | 11,005 | 7.24 |
| | 39,555 | 50,457 | 27.56 | 58,606 | 16.15 |
| **Residual Fuel:** | | | | | |
| November | 19,917 | 23,660 | 18.79 | 23,671 | 0.04 |
| December | 21,086 | 25,043 | 18.77 | 25,670 | 2.50 |
| January | 20,545 | 24,573 | 19.60 | 25,453 | 3.58 |
| February | 19,480 | 23,751 | 21.92 | 22,222 | 6.44† |
| March | 20,822 | 23,667 | 13.66 | 25,081 | 5.96 |
| | 101,850 | 120,694 | 18.50 | 122,097 | 1.16 |
| **Total Fuel Oil:** | | | | | |
| November | 27,961 | 32,258 | 15.37 | 34,872 | 8.10 |
| December | 29,222 | 34,928 | 19.53 | 37,545 | 7.49 |
| January | 28,241 | 35,160 | 24.50 | 38,772 | 10.27 |
| February | 26,481 | 34,876 | 31.70 | 33,428 | 4.15† |
| March | 29,500 | 33,929 | 15.01 | 36,086 | 6.36 |
| *U. S. Bureau of Mines. | 141,405 | 171,151 | 21.02 | 180,703 | 5.58 |

†Denotes loss.

down exact specifications for commercial burners; because some of this type are equipped with pre-heaters, and others must be furnished an oil suitable for use without pre-heating. This simplification of fuel-oil grades would eliminate refinery equipment, duplicate storage lines; simplify bulk transportation, bulk terminals, retail storage facilities, trucks, etc.

In order to operate successfully a large number of different makes and models of domestic oil burners on this limited minimum number of grades, it is absolutely essential that the product be of the highest possible quality.

### Quality of Fuel

The combination of a satisfactory oil burner and a satisfactory fuel oil creates a "domestic utility" which should deliver to the consumer the ultimate in heating happiness. This can only be attained through close co-operation between the oil-burner and fuel-oil producers. The refiner has several responsibilities in the successful operation of this "domestic heat utility," and of first importance is the quality of the fuel oil. This statement needs no detailed proof, because we have all seen the resulting difficulties from poor-quality fuels due to improper refining or impurities acquired during transportation and storage.

Specifications for fuel oil have been developed by the American Society for Testing Materials (D 396-34T), and these specifications have also been promulgated as "commercial standards" by the Division of Trade Standards of the Department of Commerce. The active group of fuel-oil specifications in the American Society for Testing Materials is Technical Committee E of Committee D-2 on Petroleum Products and Lubricants. Technical Committee E was recently appointed on the reorganization of former Technical Committee C into separate committees on burner fuels and diesel fuels. Technical Committee E is composed of representatives of producers of fuel oils and consumers—the latter group being represented in most cases by oil-burner manufacturers, and this committee is now studying possible improvement in the specifications.

To advise the Division of Trade Standards in connection with future revisions of the Commercial Standard for Fuel Oils (CS 12-35) a standing committee has been appointed consisting of producers, distributors, burner manufacturers, users, consumers, and safety interests. Revisions are promulgated only after acceptance by 60 per cent of the producing group.

After any change in the commercial standard for fuel oil it is customary for the Underwriters' Laboratories to test and re-classify burners according to the new specifications. The results of such a classification are given in Table 2.

At the present time the specifications have classified fuels into six grades, according to uses, as follows:

There are three grades of fuel oil recognized and recommended for domestic use. These grades are:

Fuel oil No. 1<br>Fuel oil No. 2 } Domestic use<br>Fuel oil No. 3

For commercial use in hotels, apartment houses, office buildings, schools, churches, etc., the following grades are used:

Fuel oil No. 4<br>Fuel oil No. 5 } Commercial use

For industrial use in public buildings, steam generation in power plants, steamships, locomotives, industrial processes, etc., the following grade is used:

Fuel oil No. 6 } Industrial use.

### Future Supply of Fuel

After quality, perhaps future supply is the next important feature to consider.

Petroleum products are generally rated next to food, clothing, and shelter as essential to present-day living. This position in the scheme of human well being makes it natural that the public should be profoundly interested in the question of an adequacy of supply. Since the first discovery well in Pennsylvania in 1859, there have been innumerable warnings of petroleum scarcity. In the past 20 years the U. S. Geological Survey has made some 11 official surveys of the petroleum reserves, and usually the later estimates exceeded the earlier ones.

For several reasons the problem of petroleum reserves should not be a source of concern to those interested in the sale of oil burners and fuel oils.

First, the geologist and engineer have replaced the old-time prospector who located wells by means of the divining rod or intuition. The success of these modern methods is demonstrated by their uncanny ability to predict the presence of oil and the actual depth at which it will be found.

Second, the modern refining methods have increased the yield of the more valuable products, as shown by the fact that in 1914 only about one-sixth of a barrel of crude was converted into gasoline; while today, through cracking, polymerization, and other engineering improvements, the average yield has been increased to 44 per cent. Third, it is estimated the shale-oil reserves[3] located in our western states would be sufficient to supply our present rate of consumption for more than 100 years. This deposit is located largely in the Rocky Mountain states, and it is estimated it contains a potential supply of some 92,000,000,000 barrels of crude oil.

The proved reserves[4] of crude petroleum in the United States as of Jan. 1, 1936, were estimated at 13,063,000,000 barrels of standard 42 gallons. This estimate was prepared by a committee of geologists, geophysicists, and petroleum engineers selected by the American Petroleum Institute, and is unquestionably reliable.

### Seasonal Demand

In order to maintain a satisfactory, fuel-oil-gasoline supply-demand relationship, it will be necessary: 1, that the winter demand for gasoline continue to increase; 2, that in the process of meeting the seasonal demand for fuel oil an excess of gasoline is not produced.

It is quite apparent that both conditions (1) and (2) are greatly affected by the unpredictable factor of weather. Thus the winter 1936-37 was unusually mild (about 9 per cent less degree-days in New York area) which permitted a higher level of gasoline consumption and required less current winter production of fuel oils.

Table 3* shows a comparison of fuel-oil production for the past three heating seasons during winter months. This shows an increase in distillate fuels of 27.56 per cent in 1935-36 severe winter season as compared with previous season, and a total increase of all grades of fuel oils of 21.02 per cent. For the season 1936-37, with a milder winter, this yield over previous season decreased to 5.58 per cent, which was more in line with increase created by additional burner installations. The decreased production of residual fuel oils in 1936-37 is more pronounced than for distillate fuels.

### Effect of Weather on Demand

Both the fuel-oil producer and the fuel-oil distributor have difficulties in balancing the production against demands because of the unpredictable weather feature. It is not generally recognized that, for a normal heating season, the distributor must be prepared to deliver approximately 53 per cent of the total season's requirements in the months of December, January, and February, while the balance is consumed over an additional six-months' period.

In the case of kerosine or range fuel, the distributor must be prepared to deliver approximately 39 per cent within the same three months, but this peak demand is not so apparent because kerosine or range fuel is used throughout the year for cooking in addition to heating.

Table 4 shows deliveries of fuel oils by months, and figures are corrected to average normal temperatures taken from average degree-days for the past several years in the New York area.

In addition to being required to deliver some 53 per cent in a three-months' period, this percentage is estimated to be normal, and can be increased or decreased as much as 15 per cent above or below the normal figure by the uncontrollable weather factor. This means that the 53 per cent can be increased to 60 per cent with sub-normal weather conditions. These percentage deliveries by months are very useful in projecting sales demands.

Because of the fact that it is not possible to change over refining operations to produce only fuel oil during any period, the refiners must project their production schedule several months ahead of the actual demand. Because of seasonal demand and rather concentrated consumption in metropolitan areas, a considerable volume of the fuel oil must be stored at the point of consumption.

This is especially true on the eastern

*U. S. Bureau of Mines.

**TABLE 4**

**Proportionate Fuel Oil Deliveries To Householders September-May**

(Figures in Per Cent)

| | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | March | April | May |
|---|---|---|---|---|---|---|---|---|---|
| Kerosine .... | 6.1 | 8.3 | 9.5 | 13.0 | 13.3 | 13.1 | 9.6 | 9.1 | 5.4 |
| Fuel oil ..... | 4.1 | 7.2 | 9.1 | 17.3 | 18.4 | 17.7 | 9.4 | 7.1 | 3.2 |

*Note:* These per cent figures are corrected to average normal temperatures taken from average degree-days for the past several years.

seaboard where much of the fuel oil is produced in the Gulf, and must be transported in tankers operating under regular schedule. This peak-demand feature is just another one of the petroleum refiner's and producer's problems brought on by the weather man.

### The Fuel-Oil Distributor

Fuel-oil distribution has a very important part to play in establishing successful "heat service" for the customer. The importance of a quality fuel oil has already been discussed; and, in addition, the fuel-oil distributor has added several desirable service features for the domestic customer.

First is the automatic delivery, or "keep-filled-service," which places on the distributor the responsibility for maintaining an adequate supply of fuel oil in the customer's tanks regardless of weather conditions. This function is carried out by one or more operating methods, such as route delivery, whereby the customer is visited at regular intervals, or by use of tank checkers who measure fuel in customers' tanks and route delivery trucks accordingly.

The latest and most successful method is by use of the "degree-day delivery system."[5] This method is not complicated, and affords a definite advantage to the customer and lower delivery costs to the distributor. The use of any one, or a combination of these systems, eliminates the problem of constant supply from the customer's mind, and takes away from the gas company the most popular argument against the use of fuel oil.

The distributor now utilizes meters for fuel-oil deliveries, thereby eliminating any question as to volume delivered, and places the measurements on a par with gas and electric deliveries. In addition to meters, some of the fuel trucks are now equipped with printing devices which print on the customer's delivery receipt the actual number of gallons delivered. All of these service features furnished by the fuel-oil distributor certainly assist in selling oil burners and in keeping them sold to present users.

Certainly, many householders are "automatic-heat" conscious today; yet in the United States there is only one oil burner installed to every 12 homes with central-heating systems. The demand for heat is a recurring necessity, and their "heating dollar" is now in circulation and will go to the distributors who provide the most satisfactory "heat service."

### CONCLUSION

The market for domestic oil heating, the greatest contributor to human comfort and convenience, has hardly been furrowed. It has been shown how the very rapid installation of oil burners in the past few years has changed the refiner's production schedule and, further, that an adequate supply of fuel oil has been and will be available to the consuming public at a reasonable price.

There is, however, one definite way in which the oil-burner industry and the fuel-oil distributors can assist the refiners in producing this adequate supply of fuel oil at a fair price. This assistance to the refiner should be in the form of an earnest endeavor by these interested parties in reducing the number of grades of fuel oils now demanded for tank-wagon deliveries.

It is well known that we are operating more than 28,000,000 automobiles in this country on two primary grades of gasoline. It should be possible to operate all of the 350 or more different makes of domestic oil burners on two primary grades of domestic fuel oil. The commercial burners operating fully automatic and without pre-heaters should be supplied with a grade to meet this service, and still another grade of heavier fuel should be available for industrial use. With this reduction in the number of grades it is necessary to produce, the refiners can use their full efforts in producing quality fuel oil in volumes sufficient to meet the increasing demand.

It is well recognized that fuel oil must be inexpensive enough to stimulate the sale of oil burners, and must be generally available; and, finally, there must be a sufficient demand for standardized products to interest the petroleum industry in its production and distribution. The petroleum industry fully realizes the importance of producing fuel oils for this rapidly-expanding market, and has been rewarded for this service by an increase in the number of satisfied customers and an unprecedented increase in sales volume.

Finally, when we consider the magnificent technical improvements made in late years in the production, refining, and utilization of fuel oils and their adaptation to the services of mankind, we can look into the future with complete trust in the continued development of this important part of the petroleum industry.

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## Sohio "Guarantees" Winter Starting

The success of its Guaranteed Winter Starting campaign through the winter of 1936-1937 has prompted the Standard Oil Co. of Ohio to continue the program through the coming winter. It is announcing the campaign in newspaper and billboard advertising.

The plan is available to every motorist and in the contract or certificate which is issued to the customer, it is specified that Standard guarantees that the engine will start "or Standard will pay the starting service bill."

Under the terms of the guarantee certificate, which becomes effective when issued to the customer, there are four provisions which the customer must observe in order to make the guarantee effective. These provisions are as follows:

(1) He must use either the regular or ethyl grade of Standard gasoline exclusively throughout the period specified in the certificate.

(2) He must use Standard's 10-W or 20-W motor oil.

(3) He must use the company's winter gear oil.

(4) He must have his battery checked at a Standard station at least every two weeks, and the reading must not fall below 1.250.

## Charleston, S. C. First In Oil Heating

Ask the first man you meet on the street what city has the greatest proportion of its homes heated with oil and he'll likely mention some city in the cold, northern states.

But he'd be wrong. It is a southern city, Charleston, S. C., which has 74 per cent of its dwellings with a central plant heated by oil.

Other cities in the high percentage bracket are Hartford, Conn., 69 per cent, San Francisco 60 per cent, and Boston 47 per cent.

Cities with 20 per cent or more of the dwellings with central plants heated by oil with the percentage, in addition to those above, are Lynn, Mass., 46; New Haven and Bridgeport, 45, Oakland, Calif., 43; Fall River, 42; Springfield, Mass., 40; Portland, Me., 38; Worcester, Mass., 36; Providence, 35; Seattle, 32; Washington, D. C., and Waterbury, 30; New Bedford, 26; Minneapolis, 25; St. Paul, 23; metropolitan New York, 23; and Omaha, 21.

In actual number of burners, the Oil Burner Institute, New York, reports, New York leads all cities, with about 250,000 installations.

## Clean Restrooms Lead To More Sales

COLUMBIA, Mo.

A motorist wheeled off the highway into a National Refining Co. lessee operated service station in Columbia, Mo., and called out, "Do you sell cigarets and have you got a telephone?"

"Yes, to both, help yourself," the salesman called back.

When the customer came out front again he commented on the rest rooms, that were not ornate but clean. The salesman came back with, "Do you need any gasoline?"

Some inquiries about the gasoline solicitation brought out a story of an early lesson in station selling that had led to the sale of many gallons of motor fuel.

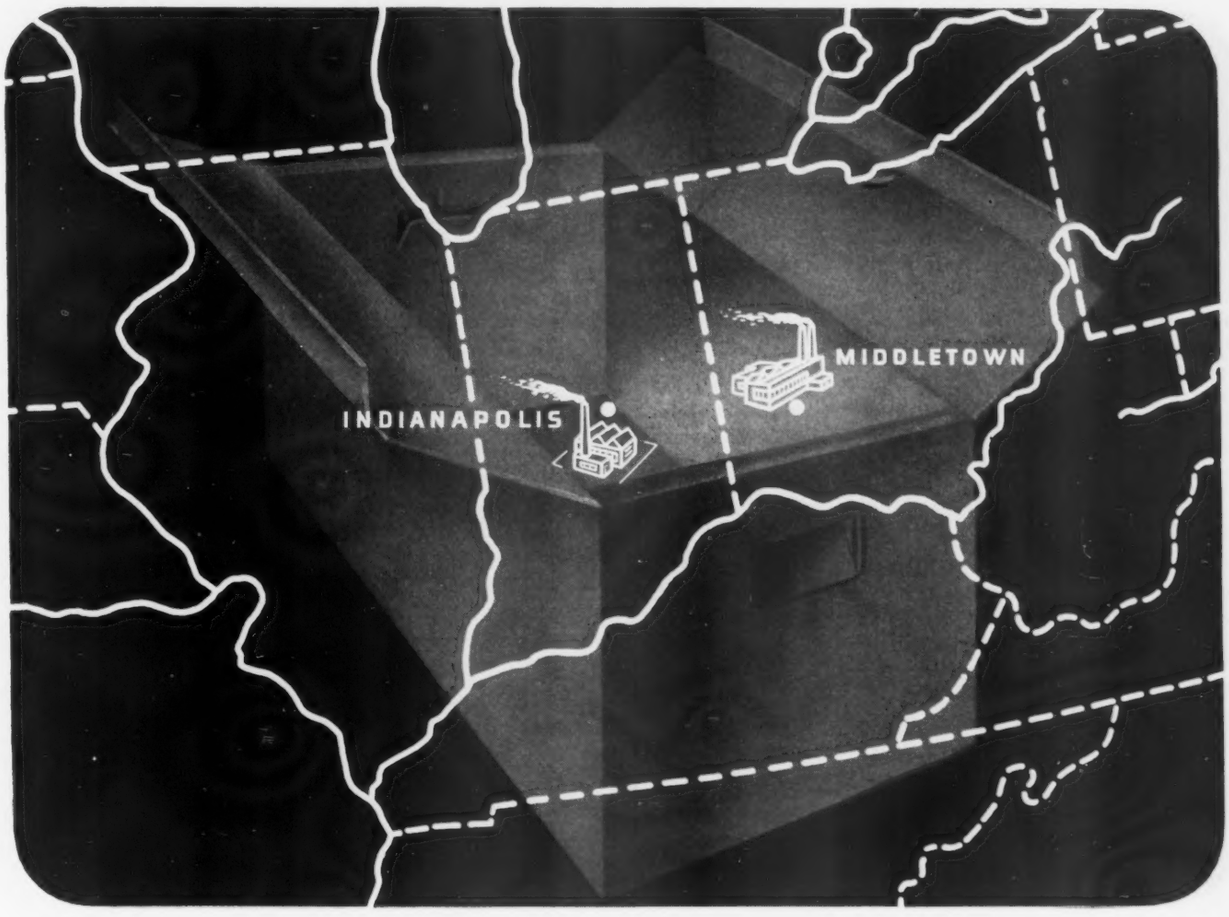
"Some years ago a National Refining official from St. Louis was in Columbia on a visit," the salesman, L. R. Stuart, related. "At that time I worked for the company, and there was another company station here in town.

"Well, after talking with us this official told us he needed an oil drain and that he had intended to buy it from us in Columbia. But neither of us station operators wanted the business, at least we didn't ask for it, and he said he was going to wait until he got back home in St. Louis before buying the oil."

That incident taught Stuart that to get business you have to ask for it, so he does, just a pleasant inquiry about the gasoline supply, even from cigaret customers.

As for the rest rooms he claims no magic except good housekeeping. The rooms have grey walls, white paint on the wood trim and around the door knob a border of black. Every morning they are swept and washed. During the day, when time permits, one of the men polices the rooms to see that they are kept clean.

# BELL SYSTEM TELETYPEWRITER SERVICE puts Middletown and Indianapolis into one INLAND CONTAINER




MAKING boxes involves making quick contact between headquarters and factory for the Inland Container Corporation.

This presented a problem. Headquarters at Indianapolis did not always know what orders Middletown had on hand until a whole mail day after they were received. Production was irregular and often delayed, pending word on credit or special instructions from Indianapolis.

Company officials decided to do something about it, and asked Bell System representatives to help them. Together they made a thorough analysis of existing communication methods, and found a need for Private Line Teletypewriter Service. It was installed at once.

These efficiencies resulted: (1) Headquarters now receives all orders and has full control over them until transmittal to Middletown. (2) Final instructions are flashed *in typewritten form*, providing accurate carbon records for billing, shipping, and other departments. (3) Production is better balanced. (4) Customer service is quicker.

Perhaps a get-together with Bell System representatives will prove equally profitable within your business, whether it's large or small. It costs nothing to find out. Just call your local telephone office.

# Fuel Systems of 1937 Automobiles

T. W. LEGATSKI* and R. R. COUCH†

**Abstract**

In the absence of information on losses from car fuel systems, it has been customary to regard systems as being adequate if they permit trouble-free operation on commercially-obtainable fuels. That this mode of classification is not entirely sound was demonstrated in the course of the Pawhuska road tests, where volumetric losses of fuel varying from 4 per cent upward, depending upon driving conditions, were determined as probable for representative cars. The tests, 251 in number, were run in a cooperative investigation conducted by the Western Petroleum Refiners Association and the Natural Gasoline Association of America.

Nine 1937 cars were driven over 10,000 miles for the threefold purpose of studying the adequacy of present fuel-system test procedures, developing new procedures, and accumulating desirable information on representative cars. Four test procedures for arriving at permissible vapor pressures were studied. Vapor-lock reference fuels of different volatility characteristics from those commonly employed were also studied in the expectation that improved duplicability and truer ratings would result through the use of more volatile reference fuels.

Results include permissible vapor pressure vs. atmospheric-temperature data on nine cars and volumetric-loss data on six cars.

Conclusions reached were as follows:

1. Since the object of vapor-lock road tests is to study and classify *fuel systems* and not fuels, it is probable that more consideration should be given to test-fuel characteristics. It would seem that more volatile reference fuels than those commonly employed might serve to indicate losses from fuel systems as well as yield the desired information as to permissible vapor pressure.

2. If sufficient care is taken and a sufficient number of tests are made, any of the road-test procedures will yield results sufficiently accurate and duplicable to be of value. The more tests that are made, the more significant the results will be.

3. Permissible vapor pressures for a range of temperatures cannot safely be predicted from a single observation.

4. Alternative methods of handling fuels in vapor-lock road tests, have promise of greatly simplifying the procedure, and further thought should be given to such ideas.

5. The method for determining fuel losses, which is based on the observed differences in the densities of samples taken from the car tank and the carburetor bowl, has promise of meeting requirements for a simple loss test.

6. Losses from fuel systems, even if trouble-free operation is possible, are of sufficient magnitude to warrant attention.

7. Indications are that the over-all losses from representative fuel systems, when using the gasoline normally sold for average maximum atmospheric temperatures, will range from approximately 4 per cent to some higher value, depending upon the type of driving.

8. The corresponding over-all loss in knock rating will be at least one octane number.

*(Presented at 18th Annual Meeting, American Petroleum Institute, Chicago, Nov. 12)*

THE Pawhuska road tests, the results of which are dealt with in this paper, were jointly conducted by the Natural Gasoline Association of America and the Western Petroleum Refiners Association during the summer of 1937. In the course of this work 251 separate tests were run on 9 cars. The tests involved about 10,000 miles of driving over a selected course, and required three-months' time to complete. Although the detailed studies of the information obtained are only partly completed, the work is sufficiently far advanced to permit this preliminary report.

## PURPOSES OF THE PAWHUSKA ROAD TESTS

The purposes of the tests will be more readily apparent after consideration has been given to the present status of the vapor-lock problem in its relationship to the fuel problem. Why this continued interest in fuels and fuel systems? In brief, the interest of the petroleum industry in car fuel-system designs is prompted by the observation that inadequate fuel systems impose restrictions on gasoline raw materials. This has been known for some time, and many papers have been given on that general subject. Besides the matter of excluding from consideration large volumes of raw materials, inadequate fuel systems also result in operating difficulties such as vapor lock, in lost mileage through losses of vaporized gasoline at various points in the system, and in quality losses such as decreased anti-knock value, decreased ease of starting, etc. These other characteristics of poor fuel systems have likewise been known for some time. Because the fuel systems of the various makes and models of cars are far from being equal in their ability to handle fuels without operating troubles and without excessive losses, fuel manufacturers have for years been constrained to observe specifications which would result in substantially trouble-free operation in the poorest systems. Entirely apart from the restrictions which such a situation imposes on fuel manufacturers, the cars which could handle a better fuel are definitely penalized. In substance, all studies to date have indicated that better fuel systems would benefit the car designers, the fuel manufacturers, and the car owners. Better systems, besides making better use of our present-day gasoline, would aid in paving the way toward better and cheaper fuels. In view of these known advantages, it is indeed surprising that little progress has been made in the direction of improved systems.

Why this lack of progress? Is it due to failure on the part of designers, including the "body artists," to appreciate fully this general situation? Is it due to a feeling that "merely getting under the wire" on vapor lock is sufficient? If so, isn't it possible that the lack of interest is due to lack of information on some of the effects traceable to poor design, with no methods available for obtaining that information? True, we have a number of road-testing procedures. Do such methods actually rate cars, or do they merely tell us whether a fuel would or would not give trouble-free operation? What do we know of minimum mileage losses traceable to poorly-designed fuel systems? What do we know of fuel-quality losses incurred in passing through such systems? The answer is—very little. Clearly, questions of test adequacy, true rating of systems, losses, etc., are questions which merit answers—more complete answers than we now have.

This brings us to the purpose of the Pawhuska road tests. As outlined by the steering committee in charge of this work, the purpose was a threefold one, viz.: 1, to study existing road-test pro-

*Phillips Petroleum Co., Bartlesville, Okla.; chairman, Western Petroleum Refiners Assoc.-Natural Gasoline Assoc. of America Road-Test Steering Committee.

†Phillips Petroleum Co., Bartlesville, Okla.; director, Western Petroleum Refiners Assoc.-Natural Gasoline Assoc. of America Road-Test Program.

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cedures critically to determine their limitations; 2, to work towards the development of more satisfactory road-test procedures for the determination of permissible vapor pressures, volumetric losses, and quality losses; and 3, to obtain as much and as complete information as possible on the fuel-system characteristics of representative 1937 cars.

## TEST PROCEDURES

The test methods employed to obtain information on permissible vapor pressures of fuels for trouble-free operation at various atmospheric temperatures, on volumetric losses from the fuel systems, and on fuel-quality losses, will be briefly described in the following paragraphs.

### Permissible-Vapor-Pressure Test Procedure

The procedure involved the use of one test method with three alternative types of fuel-handling equipment. In technical circles, the method is known as the 1937 tentative standard vapor-lock road-test method. In brief, it calls for test runs on the car at various atmospheric temperatures, preferably above 85 deg. F., using products of closely-specified distillation characteristics and of different vapor pressures. For convenience, the fuel can be designated as the standard vapor-lock reference fuel. The "vapor-locking vapor pressure" is considered in this test as being the highest vapor pressure in a fuel which will permit a car to be started and accelerated to 55 miles per hour after a 5-min. stop at the end of an extended period of driving at constant speed. Samples are withdrawn from the car tank at the end of each observation of car behavior, for check purposes. It is obvious that permissible vapor pressures thus determined will be those for one of the worst conditions of operation; as, after getting under way, a car can normally handle a product of somewhat higher vapor pressure with no apparent operating difficulties. The method is inherently the soundest one for arriving at permissible vapor pressures, because the conditions are identical with those observed in normal driving. The most serious shortcoming of the method as a routine test procedure is its unwieldiness. This is due to its being a "cut-and-try" method, necessitating many trial blends and many miles of driving for a complete set of data on any one car.

Alternative methods for handling the fuels in this test have been suggested as a step toward simplification. All such suggestions have been looked upon with disfavor; because, in each instance, modifications in the conventional fuel system were required, and it was feared that these would seriously affect the results. Notwithstanding past objections, three alternative methods for handling fuels were used in the course of the Pawhuska tests for the purpose of comparing results with those obtained in the conventional method. Each of these alternative methods merits a brief description.

*Alternative No.* 1, designated as the "rear-rack method," involved the use of a number of 1-gal. fuel containers, mounted in a rack on the rear bumper of the car. A three-way valve was inserted in the regular fuel line close to the car tank in a fashion so that fuel could be used either from the car tank or from the gallon containers mounted on the rack. Fuel from the car tank would be used during the warm-up period and from the 1-gallon containers for the actual vapor-lock tests. In normal testing each container would be filled with a fuel of different vapor pressure, so that observations could be conveniently made on a range of products in any one test run. At the conclusion of each observation, a check vapor-pressure determination would be made on the remaining fuel in the container.

*Alternative No.* 2, designated as the "float-chamber method," involved the use of three 5-gallon containers manifolded together and mounted in the rear-seat space of the car. The feed line from these containers passed to a float chamber mounted on the rear bumper of the car on a level with the car tank. The float chamber, designed for the purpose of eliminating the effect of a static head of gasoline on the system, was of one quart capacity, and delivered directly into the car fuel system at the tank connection. In the course of testing, each of the three 5-gallon containers would be filled with a fuel of different vapor pressure. Warm-up and vapor-lock runs would be made on each tank. At the conclusion of each observation, a check vapor-pressure determination would be made on a sample of gasoline drawn from the float chamber.

*Alternative No.* 3, designated as the "proportioning-valve method," was identical with No. 2 except that two 5-gal. fuel tanks mounted in the rear-seat space delivered through a manually-controlled proportioning valve, and from thence to the float chamber on the rear bumper. In the normal operation of this equip-

**TABLE 1**

**Maximum Permissible Reid Vapor Pressures as Determined for All Cars and Fuels**

| Car Designation | Type Reference Fuel | Atmospheric Temperature (Deg. F.) 80 | 90 | 100 | Predicted * Reid Vapor Pressure at 100 Deg. F. | Observed Slope or Conversion Factor |
|---|---|---|---|---|---|---|
| A | Standard | 12.23 | 10.62 | 9.04 | 9.42 | 0.158 |
| A | Special | 11.80 | 10.20 | 8.60 | 9.00 | 0.160 |
| B | Standard | 11.38 | 10.15 | 8.96 | 8.95 | 0.119 |
| B | Special | 11.30 | 10.15 | 9.02 | 8.95 | 0.113 |
| B′ | Standard | 11.42 | 9.10 | 6.82 | 7.90 | 0.228 |
| B′ | Special | 9.23 | 7.96 | 6.79 | 6.76 | 0.117 |
| C | Standard | 12.00 | 10.12 | 8.92 | 8.92 | 0.120 |
| C | Special | 12.02 | 9.08 | 6.75 | 7.88 | 0.223 |
| D | Standard | .... | 9.30 | 7.70 | 8.10 | 0.160 |
| D | Special | 9.93 | 8.30 | 6.70 | 7.10 | 0.160 |
| E | Standard | 10.87 | 8.82 | 6.80 | 7.62 | 0.202 |
| E | Special | 8.30 | 7.06 | 5.82 | 5.86 | 0.124 |
| F | Standard | .... | 9.27 | 7.93 | 8.07 | 0.134 |
| F | Special | .... | 9.40 | 8.08 | 8.20 | 0.132 |
| G | Standard | 11.47 | 9.90 | 8.35 | 8.70 | 0.155 |
| G | Special | 10.93 | 8.90 | 6.86 | 7.70 | 0.204 |
| H | Standard | .... | 10.01 | 8.20 | 8.81 | 0.181 |

* Determined by subtracting 1.2 lb. from the observed permissible vapor pressures at 90 deg. F.

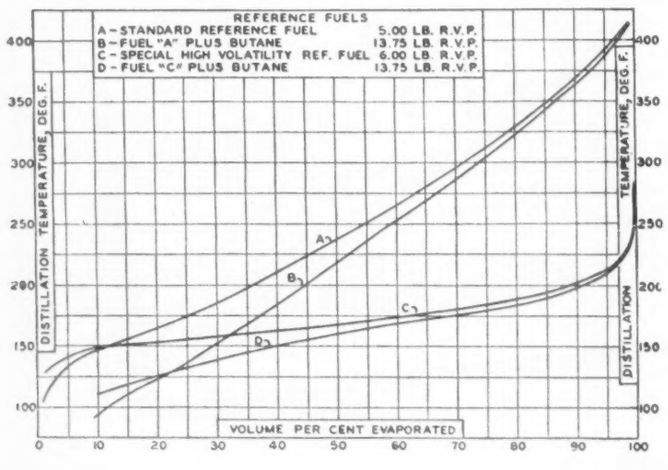
REFERENCE FUELS
A - STANDARD REFERENCE FUEL 5.00 LB. R.V.P.
B - FUEL "A" PLUS BUTANE 13.75 LB. R.V.P.
C - SPECIAL HIGH VOLATILITY REF. FUEL 6.00 LB. R.V.P.
D - FUEL "C" PLUS BUTANE 13.75 LB. R.V.P.
DISTILLATION TEMPERATURE, DEG. F.
TEMPERATURE, DEG. F.
DISTILLATION
VOLUME PER CENT EVAPORATED
A
B
C
D

Fig. 1—Distillation characteristics of test gasolines

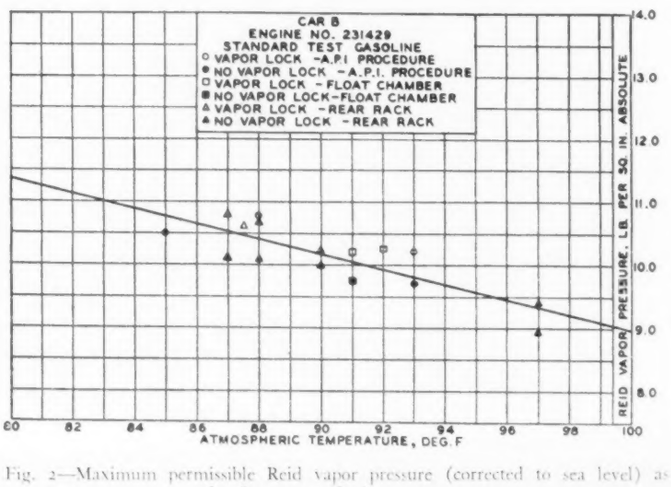
CAR B
ENGINE NO. 231429
STANDARD TEST GASOLINE
VAPOR LOCK - A.P.I. PROCEDURE
NO VAPOR LOCK - A.P.I. PROCEDURE
VAPOR LOCK - FLOAT CHAMBER
NO VAPOR LOCK - FLOAT CHAMBER
VAPOR LOCK - REAR RACK
NO VAPOR LOCK - REAR RACK
REID VAPOR PRESSURE, LB. PER SQ. IN. ABSOLUTE
ATMOSPHERIC TEMPERATURE, DEG. F

Fig. 2—Maximum permissible Reid vapor pressure (corrected to sea level) as related to atmospheric temperature

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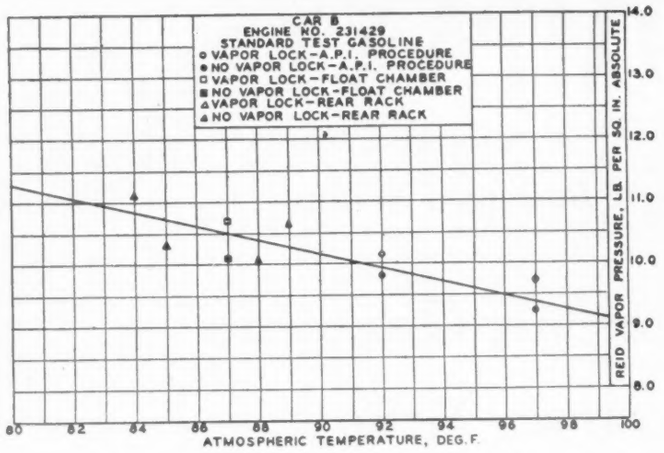



Fig. 3—Maximum permissible Reid vapor pressure (corrected to sea level) as related to atmospheric temperature

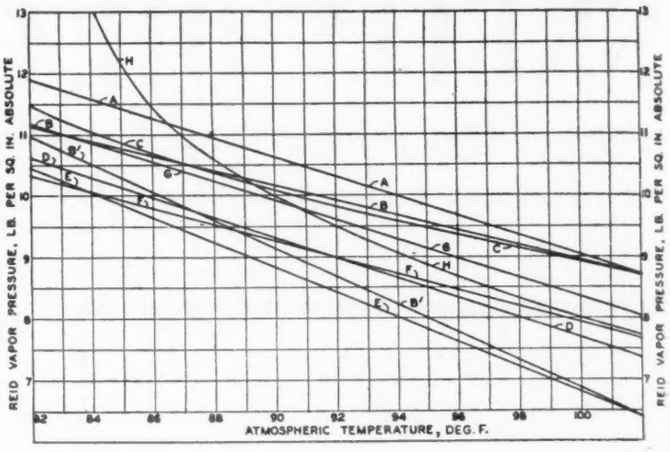



Fig. 6—Maximum permissible Reid vapor pressures (corrected to sea level) for various atmospheric temperatures, standard reference fuel plus butane

ment, test fuels differing from each other by 3 or 4 lb. in vapor pressure would be prepared and charged into the two 5-gal. fuel tanks. The proportioning valve designed so that it would mix fuels accurately in increments of 5 per cent, would be set at a desired point and road-test observations made, culminating in the withdrawal of a check sample from the float chamber. By trying a number of settings in rapid order, the complete range of vapor pressures could be conveniently explored in a relatively short period of time.

The actual details of the testing procedure, methods of making observations, etc., were kept the same in each case in order to facilitate comparisons of these various alternative methods of handling test fuels.

In order to accumulate information on other possibly more suitable types of test fuels, duplicate runs were made with a product considerably more volatile than the previously-designated standard reference fuel. This choice was prompted by the opinion that a considerably more volatile reference fuel might afford one means of differentiating between systems which owed their fuel-handling ability to low temperatures and those which owed their fuel-handling ability to excessive wasting of vapors. The volatility characteristics of both pairs of reference fuels are shown in Fig. 1. All of these fuels were prepared in quantities sufficient for the entire test program.

### Vapor-Loss Road-Test Procedure

In the absence of a generally-accepted procedure for determining losses from fuel systems through evaporation, a new method was devised and studied. The nature of losses and the means employed by fuel-system engineers to avoid operating troubles makes the problem of loss measurement a difficult one. Obviously, any method which involves attachments to the fuel system, or which involves changes in the location, size, etc., of carburetor vents, will tend to affect losses, and will probably yield fictitious results. The soundest method would be one requiring no changes whatsoever in the fuel system. This requirement can be met by relying upon an over-all material balance of the fuel in the system. Such a procedure would require a closely-specified fuel, with provisions for drawing periodically representative samples from the car tank and the carburetor bowl.

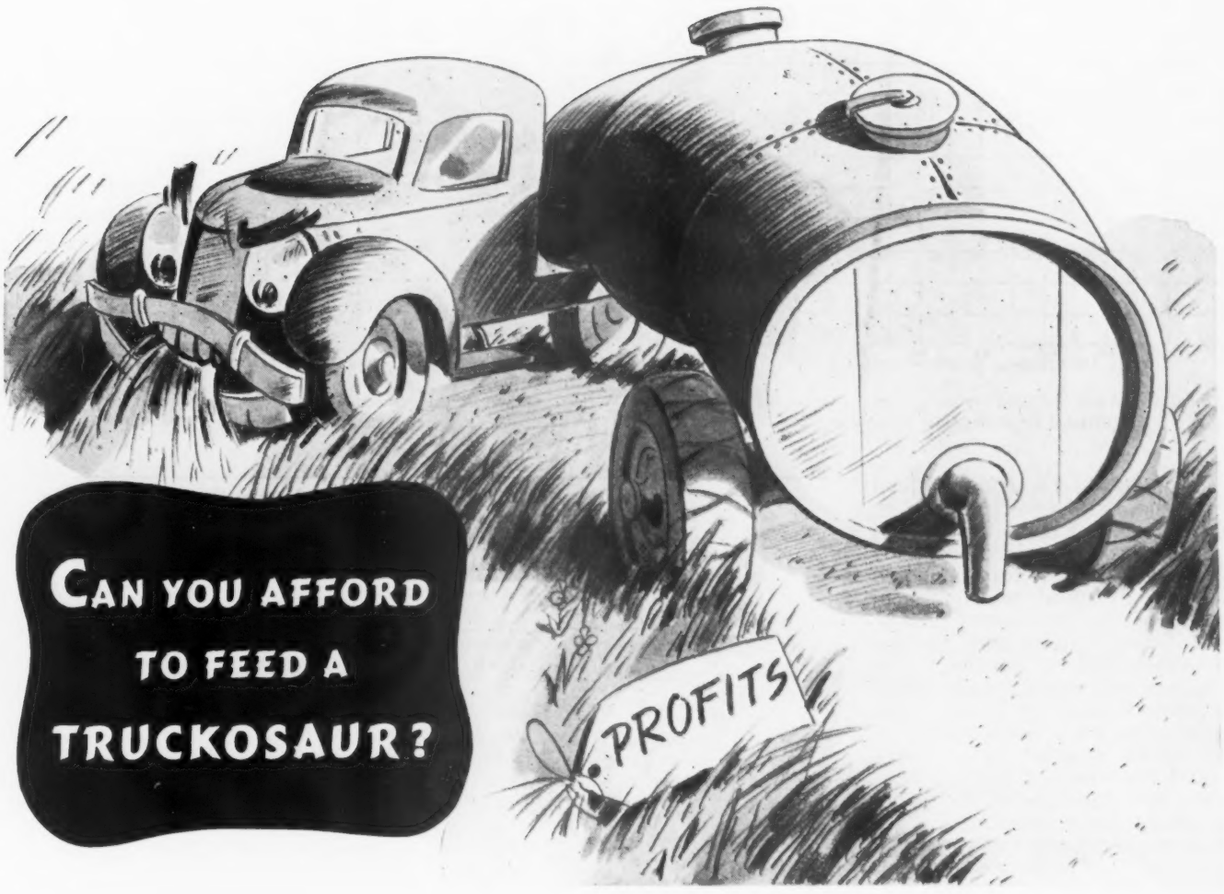
Sampling from the car tank presented no problem. To obtain carburetor-bowl

**TABLE 2**

**Summary of Fuel-System Temperature Observations**

(Increase in temperature above atmospheric)

| Car Identification | | Car "A" | | Car "B" | | Car "C" | | Car "D" | | Car "E" | | Car "F" | | Car "G" | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop | Stabilized | After 5-Min. Stop |
| Rear tank | Average | 18 | 4 | 1 | 0 | 5 | 16 | −1 | 4 | 5 | 15 | 12 | 5 | 13 | 11 |
| | Maximum | 33 | 6 | 5 | 4 | 10 | 24 | 9 | 18 | 15 | 20 | 25 | 14 | 19 | 27 |
| | Minimum | 7 | 3 | −4 | −4 | −2 | 9 | 10 | −7 | −8 | 7 | 2 | −5 | 2 | 3 |
| Fuel-pump inlet | Average | 18 | 30 | 22 | 33 | 17 | 39 | 29 | 50 | 25 | 28 | 35 | 38 | 26 | 32 |
| | Maximum | 23 | 35 | 24 | 39 | 20 | 42 | 36 | 60 | 32 | 47 | 42 | 45 | 31 | 37 |
| | Minimum | 14 | 26 | 17 | 27 | 8 | 34 | 22 | 45 | 20 | 20 | 32 | 8 | 20 | 25 |
| Fuel-pump outlet | Average | 27 | 33 | 29 | 38 | 38 | 85 | 48 | 91 | 27 | 69 | 44 | 41 | 34 | 42 |
| | Maximum | 34 | 37 | 33 | 40 | 45 | 100 | 58 | 113 | 35 | 82 | 48 | 48 | 39 | 46 |
| | Minimum | 21 | 28 | 26 | 34 | 30 | 68 | 39 | 69 | 20 | 54 | 38 | 14 | 29 | 36 |
| Carburetor bowl | Average | 28 | 30 | 28 | 35 | 22 | 43 | 41 | 48 | 30 | 46 | 53 | 53 | 37 | 44 |
| | Maximum | 31 | 36 | 34 | 40 | 24 | 49 | 47 | 62 | 36 | 58 | 67 | 66 | 44 | 53 |
| | Minimum | 29 | 24 | 25 | 32 | 19 | 37 | 35 | 36 | 24 | 39 | 41 | 41 | 28 | 34 |
| Underhood | Average | 37 | 22 | 33 | 39 | 15 | 44 | 19 | 41 | 29 | 43 | 46 | 51 | 46 | 64 |
| | Maximum | 43 | 26 | 38 | 45 | 19 | 54 | 28 | 59 | 34 | 68 | 52 | 59 | 54 | 86 |
| | Minimum | 34 | 16 | 25 | 36 | 9 | 31 | 7 | 12 | 22 | 25 | 39 | 41 | 43 | 34 |
| Atmospheric temperature | Average | 87 | 87 | 92 | 92 | 90 | 90 | 95 | 95 | 91 | 91 | 97 | 97 | 88 | 88 |
| | Maximum | 89 | 88 | 97 | 98 | 96 | 97 | 106 | 105 | 100 | 101 | 104 | 104 | 96 | 96 |
| | Minimum | 83 | 83 | 85 | 86 | 80 | 80 | 86 | 86 | 80 | 80 | 84 | 86 | 82 | 82 |
| Number of tests | | 4 | | 8 | | 9 | | 22 | | 16 | | 12 | | 11 | |

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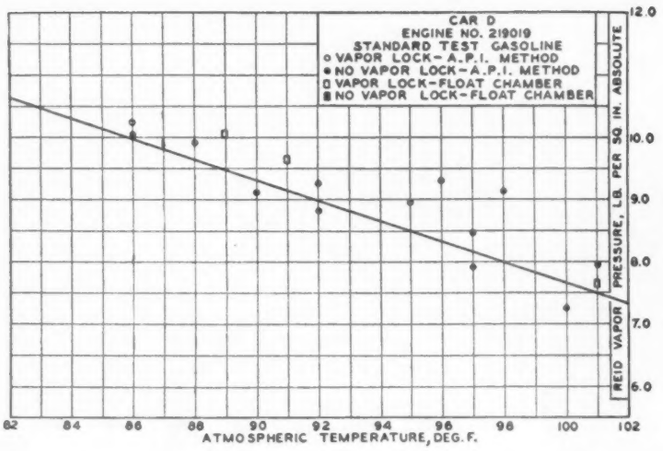
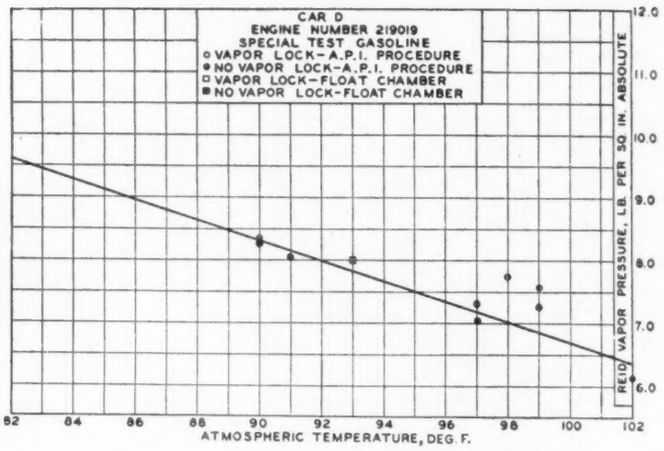

CAR D
ENGINE NO. 219019
STANDARD TEST GASOLINE
○ VAPOR LOCK - A.P.I. METHOD
● NO VAPOR LOCK - A.P.I. METHOD
□ VAPOR LOCK - FLOAT CHAMBER
■ NO VAPOR LOCK - FLOAT CHAMBER
REID VAPOR PRESSURE, LB. PER SQ IN. ABSOLUTE
ATMOSPHERIC TEMPERATURE, DEG. F.

Fig. 4—Maximum permissible Reid vapor pressure (corrected to sea level) as related to atmospheric temperature


CAR D
ENGINE NUMBER 219019
SPECIAL TEST GASOLINE
○ VAPOR LOCK - A.P.I. PROCEDURE
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■ NO VAPOR LOCK - FLOAT CHAMBER
REID VAPOR PRESSURE, LB. PER SQ IN. ABSOLUTE
ATMOSPHERIC TEMPERATURE, DEG. F.

Fig. 5—Maximum permissible Reid vapor pressure (corrected to sea level) as related to atmospheric temperature

samples, a small hole was drilled and tapped in the base of the bowl sufficiently far removed from the main jet to avoid robbing the jet. An insulated copper tube of small diameter, fitted with a stopcock delivering into a chilled receiver, completed the assembly. In a series of constant-speed driving experiments, various rates of withdrawal of samples were studied. A rate was decided upon which was equivalent to between 1 and 2 per cent of the normal car consumption at that speed. Rates as much as six times greater than the standard rate of withdrawal were found to have no noticeable effect on sample characteristics.

Various methods for arriving at the material balance on the fuel were considered. After careful study the conclusion was reached that a comparison of the densities of fuel in the car tank and residual fuel in the carburetor bowl had promise of yielding the desired information. Such density values should reflect losses if the volatility characteristics of the fuel are closely specified.

A series of laboratory experiments on an improvised fuel system, involving loss determinations through simple distillation and through flash vaporization, supplemented by density determinations on all products, supported this conclusion. The results were further substantiated by careful measurements on cars under test. In substance, the results indicated that each change in gravity of 1 deg. API was accompanied by a loss of 3.5 per cent by volume. The method is applicable to the measurement of losses of 10 per cent or less, and indicates the minimum loss for the observed gravity change.

The normal procedure for making vapor-loss measurements consisted of sampling the contents of the car tank after the car had been thoroughly warmed up. A 90-cc. sample of residual carburetor-bowl liquid was then continuously drawn while driving a distance of 30 miles at average speed. At the conclusion of the run a second sample was taken of the fuel in the car tank. The difference between the densities of the initial and final samples in the car tank was taken as the index of tank losses. The difference between the average density of the fuel in the car tank and the carburetor-bowl sample was taken as the index of bowl losses. All densities were determined on a Westphal balance. A calibration curve of minimum loss vs. density change for the fuel used made the matter of conversion to terms of loss a simple one. The

**TABLE 3**

**Probable Vapor Losses for Conditions of Steady Driving at 55 Miles Per Hour—All Cars**

(Losses in Terms of Volume Per Cent)

| | Atmospheric Temperature (Deg. F.) | Average Motor Fuel of 8.0 Lb. Reid Vapor Pressure | | | Average Motor Fuel of 9.0 Lb. Reid Vapor Pressure | | |
|---|---|---|---|---|---|---|---|
| | | Carburetor Bowl | Rear Tank | Over-all | Carburetor Bowl | Rear Tank | Over-all |
| Car A | 90 | 1.02 | 1.40 | 2.42 | 1.52 | 1.66 | 3.18 |
| | 100 | 1.67 | 1.89 | 3.56 | 2.17 | 2.25 | 4.42 |
| Car B | 90 | 0.93 | ... | ... | 1.43 | ... | ... |
| | 100 | 1.55 | ... | ... | 2.05 | ... | ... |
| Car C | 90 | 0.65 | ... | ... | 1.15 | ... | ... |
| | 100 | 1.20 | ... | ... | 1.70 | ... | ... |
| Car D | 90 | 1.57 | ... | ... | 2.07 | ... | ... |
| | 100 | 2.20 | ... | ... | 2.68 | ... | ... |
| Car E | 90 | 1.00 | 1.30 | 2.30 | 1.55 | 2.30 | 3.85 |
| | 100 | 1.40 | 3.30 | 4.70 | 1.90 | 4.20 | 6.10 |
| Car F | 90 | 1.72 | 1.00 | 2.72 | 2.22 | 2.00 | 4.22 |
| | 100 | 2.33 | 2.70 | 5.03 | 2.80 | 3.70 | 6.50 |
| Car G | 90 | 1.40 | 1.50 | 2.90 | 1.90 | 1.85 | 3.75 |
| | 100 | 1.95 | 2.09 | 4.04 | 2.45 | 2.55 | 5.00 |

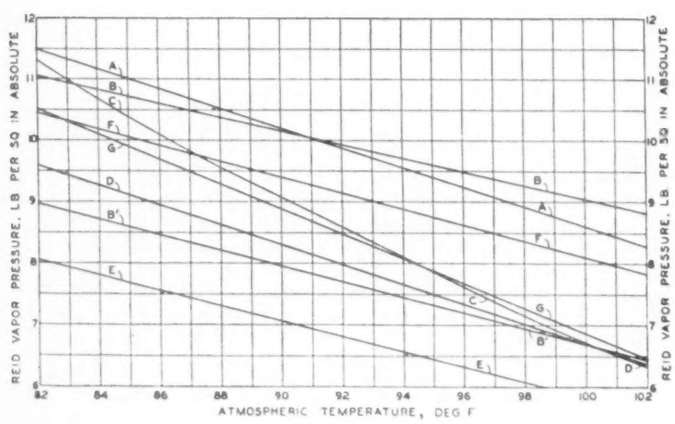



Fig. 7—Maximum permissible Reid vapor pressures (corrected to sea level) for various atmospheric temperatures, special high-volatility reference fuel plus butane

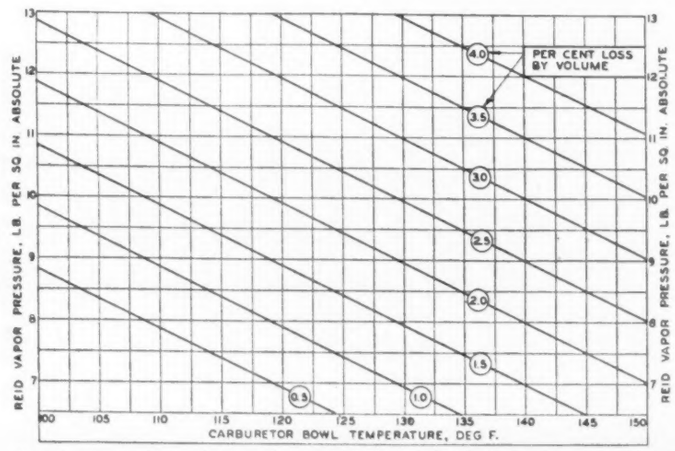



Fig. 8—Vapor losses from carburetor bowl as related to Reid vapor pressure and carburetor-bowl temperature

The nationally advertised Sinclair H-C Gasoline and Sinclair Opaline and Sinclair Pennsylvania Motor Oils head a complete line of high-grade petroleum products which includes:—

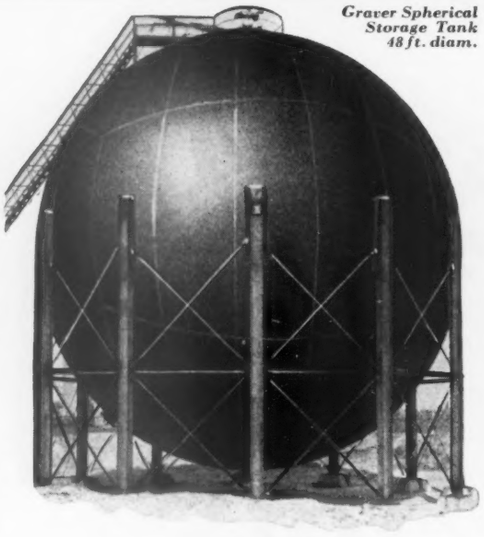
| | |
|---|---|
| **LUBRICANTS—** | for automobiles, trucks, tractors and farm equipment. |
| **FUELS—** | Gasoline, Kerosene, Range Oils, Fuel Oils, Diesel Oils. |
| **INDUSTRIAL LUBRICANTS—** | 100 specialized products covering lubrication requirements for all types of machinery. |
| **RUBILENE OILS—** | for Diesel and gas engines, stationary and marine turbine lubrication. |
| **SINCLAIR TEN-OL—** | an outstanding new Diesel engine lubricant for "Caterpillar" Diesels, which increases efficiency and cuts operating costs. |
| **SPECIALTIES—** | P.D. Insect Spray, Sinclair Stock Spray, Naphthas and Solvents, Soap, Household Oil, Automobile and Metal Polishes. |

Distributors, jobbers and dealers are invited to 'phone the nearest Sinclair office or write Sinclair Refining Company (Inc.), 630 Fifth Avenue, New York City, for full details about the value of the Sinclair franchise.

SINCLAIR

GENERAL STEEL PLATE CONSTRUCTION
GRAVER
TANKS
WATER CONDITIONING EQUIPMENT

*Graver Spherical Storage Tank 48 ft. diam.*



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For three-quarters of a century, the Graver Organization has been designing, constructing, and erecting every type and size tank and steel vessel for indoor and outdoor use.

Whatever your requirements, Graver can serve you most efficiently.

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Swing Joints

No metal to metal contact. Packing bears all the pressure. Swing freely yet stay tight. Made in double, single, straight swing and ball and socket styles. All sizes to fit all needs.

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NO METAL TO METAL CONTACT
always tight

MORRISON BROTHERS CO.
Oil Equipment Headquarters
DUBUQUE, IOWA

fuel used in all vapor-loss tests was the previously-designated standard vapor-lock reference fuel.

**Octane-Number-Loss Procedure**

A limited number of ASTM anti-knock determinations made on residual gasolines, prepared in the course of the laboratory studies on the vapor-loss method, indicated that vapor losses could be related to octane losses. Ten determinations made on residual samples of the 70-octane ethylized vapor-lock reference fuel indicated a loss of from 0.25 to 0.3 in octane number for each per cent loss in volume, or a loss of one octane number per degree API loss in gravity. This relationship was a consistent one for volumetric losses of 10 per cent or less. No attempt was made to measure the possible effects of volumetric losses on road octane numbers, although there is some reason to believe that road octane numbers might be even more adversely affected.

**RESULTS**

The nine cars tested included those makes of low-medium-, and high-priced cars which are encountered in the largest number. All nine of the cars were examined to determine permissible vapor-pressure-temperature curves when using the standard reference fuel. Eight of these

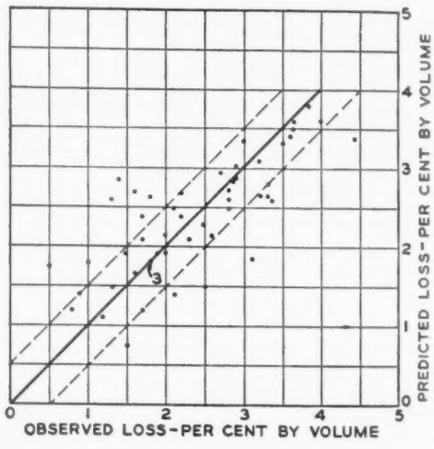



Fig. 9—Over-all losses-observed vs. predicted values

cars were also examined to determine permissible vapor-pressure-temperature curves when using the more volatile special reference fuel. Observations in the case of seven cars included, besides atmospheric temperatures, the temperature of the car tank, inlet and outlet temperatures at the fuel pump, carburetor-bowl temperature, and water-jacket, underhood, and crankcase temperatures. Six of the cars, two in the low-price bracket and four in the medium- to high-price bracket, were examined to determine volumetric losses from their respective fuel systems. Since a detailed description of the results on each car would be time-consuming, the discussion will be confined to typical results on representative cars followed by a summary of all results.

Fig. 2 shows the permissible vapor-pressure-temperature curve for car "B" when using the standard reference fuel. The corresponding curve for the considerably more volatile reference fuel is shown in Fig. 3. This particular car is one of the low-price group. The similarity in the two curves is worthwhile noting; as ap-

parently, the volatility of the fuels has had no influence on the results. The different fuel-handling methods employed in the tests are apparent from the designation of points. Good agreement between the various methods will be noted.

Fig. 4 and 5 are similar curves for car "D." Car "D" is one of those in the higher-price bracket. Note the fact that in this case the permissible vapor pressures are considerably lower with the volatile test gasoline. Such differences can be laid to the peculiarities in the fuel system. These results indicate that vapor-lock test results, independently determined, will be virtually meaningless unless the test fuels used in the separate investigations are the same or nearly so. The more volatile reference fuel offers promise of more nearly accomplishing the desired result of sorting out fuel systems, because wastage of vapors results in lower permissible vapor pressures when fuels of considerable volatility are used in the vapor-lock road tests.

Fig. 6 and 7 show the permissible vapor-pressure curves for all cars tested with the two types of reference fuel. The most significant point in connection with these results is the variation in the slopes of the curves. It is obvious that the prediction of permissible vapor pressures for a range of temperatures from a single observation will be an unsound practice. To facilitate comparisons, all determined permissible vapor pressures for both types of reference fuels are presented in Table 1. Table 1 includes limiting vapor pressures predicted by subtracting 1.2 lb. from the determined permissible vapor pressures for 90-deg.-F. operation. Marked discrepancies between true and predicted values will be noted.

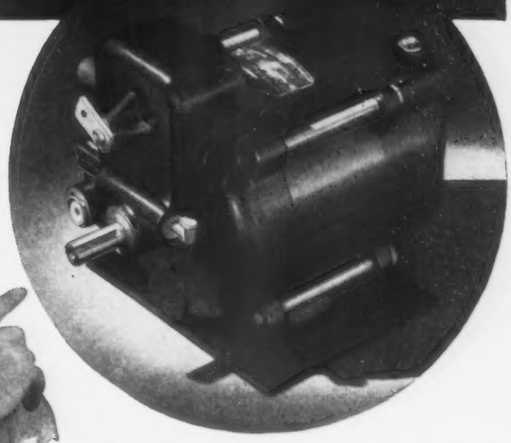
In considering all of these permissible vapor pressures, it should be kept in mind that the values are probably for a most extreme condition. Also, the vapor pressures are those determined on the car-tank contents after vapor-lock observations. They are in no wise related to or indicative of required vapor pressures of fuels at filling stations. It has been observed that cars in normal driving can handle considerably higher vapor pressures than those indicated without encountering operating difficulties.

A few brief remarks regarding the findings on the various modifications in test methods will be of interest. Each of the three alternative methods for arriving at permissible vapor pressures was found to be superior to the present tentative standard method from the standpoint of convenience and speed. As an example, the method embodying the proportioning valve was found to give results in from one-third to one-half the time normally required in the conventional method. The great saving in time required to obtain full and complete information is sufficient incentive to warrant more attention being paid to these various modifications, particularly since results were in such good agreement.

Table 2 is a condensed summary of temperature observations made on the various cars in the course of the tests. Results are given in terms of the increase in temperature above atmospheric temperature. Particularly noteworthy are the unusually-high temperature rises encountered after the 5-min. rest period.

In exploring the range of losses as influenced by temperature, vapor pressure, and type of driving, two cars representa-


"SURE STARTING, WHETHER IT'S HOT AS BLAZES OR 30 BELOW"



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MR. EXECUTIVE — *This motor will lower repair and maintenance expense.*

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MR. SERVICE MAN — *All this motor requires is oiling once a year.*

MR. Operator knows—because he uses them—that G-E capacitor-motors give instant service under extreme operating conditions. And his opinion is backed by that of more than a million satisfied people who have G-E capacitor-motors on their refrigerators, stokers, and water pumps.

And that isn't all—G-E capacitor-motors are economical to operate. For example, the rotor is indestructible; the stator windings are resistant to moisture, oil, and mild acids and alkalis; and neither commutator nor brushes are used.

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070-188

GENERAL ELECTRIC

**TABLE 4**

**Predicted Vapor Losses for Conditions of Steady Driving at 55 Miles Per Hour—Car "A"**

(Losses in Terms of Volume Per Cent)

| Reid Vapor Pressure | | Atmospheric Temperature (Deg. F.) 80 | 85 | 90 | 95 | 100 | 105 |
|---|---|---|---|---|---|---|---|
| 7.5 | Carburetor bowl | | | 0.77 | 1.07 | 1.43 | 1.75 |
| | Rear tank | | | 1.30 | 1.50 | 1.75 | ... |
| | Over-all | | | 2.07 | 2.57 | 3.18 | ... |
| 8.0 | Carburetor bowl | | 0.70 | 1.02 | 1.33 | 1.67 | 2.00 |
| | Rear tank | | 1.18 | 1.40 | 1.66 | 1.89 | ... |
| | Over-all | | 1.88 | 2.42 | 2.99 | 3.56 | ... |
| 8.5 | Carburetor bowl | | 0.93 | 1.28 | 1.57 | 1.93 | |
| | Rear tank | | 1.30 | 1.50 | 1.80 | 1.96 | |
| | Over-all | | 2.23 | 2.78 | 3.37 | 3.89 | |
| 9.0 | Carburetor bowl | 0.88 | 1.17 | 1.52 | 1.83 | 2.17 | |
| | Rear tank | 1.18 | 1.40 | 1.66 | 1.90 | 2.25 | |
| | Over-all | 2.06 | 2.57 | 3.18 | 3.73 | 4.42 | |
| 9.5 | Carburetor bowl | 1.12 | 1.43 | 1.77 | 2.07 | | |
| | Rear tank | 1.30 | 1.50 | 1.80 | 2.08 | | |
| | Over-all | 2.42 | 2.93 | 3.57 | 4.15 | | |
| 10.0 | Carburetor bowl | 1.35 | 1.67 | 2.02 | | | |
| | Rear tank | 1.40 | 1.66 | 1.93 | | | |
| | Over-all | 2.75 | 3.33 | 3.95 | | | |
| 10.5 | Carburetor bowl | 1.60 | 1.93 | 2.25 | | | |
| | Rear tank | 1.50 | 1.82 | 2.10 | | | |
| | Over-all | 3.10 | 3.75 | 4.35 | | | |
| 11.0 | Carburetor bowl | 1.85 | 2.17 | | | | |
| | Rear tank | 1.66 | 1.95 | | | | |
| | Over-all | 3.51 | 4.12 | | | | |
| 11.5 | Carburetor bowl | 2.10 | | | | | |
| | Rear tank | 1.83 | | | | | |
| | Over-all | 3.93 | | | | | |

Vapor-Lock Region

tive of the lower-price bracket and one in the high-price bracket were selected for exhaustive experiments. Loss determinations were made in each case on the car-tank and carburetor-bowl liquids for a range of atmospheric temperatures when operating on the standard reference fuel of various vapor pressures. Observations were made both for the condition of steady driving, with the bowl sample drawn while under way, and in a few instances for conditions simulating town driving, in which case the bowl samples were drawn after a rest period of approximately one hour. The standard vapor-lock reference fuel, because of its close resemblance to our present-day average summer gasoline, was found particularly well adapted to loss studies.

In examining the loss data obtained on all cars, it was found that a reasonably good relationship existed between the vapor pressure of the fuel in the car tank, the observed carburetor-bowl temperatures for the various atmospheric temperatures, and the observed loss. This relationship is represented in Fig. 8. Although admittedly not as satisfactory as actual loss measurements, this relationship does enable some predictions as to the probable losses in trip driving where only the fuel vapor pressures and the carburetor-bowl temperatures are known. Predicted losses for all cars tested on which temperature data were available gave the results shown in Table 3. An indication of the reliability of this method of predicting losses can be gained from Fig. 9, where predicted over-all losses are compared with those actually determined. The predictions appear to be reasonably reliable.

For a more complete picture on representative cars the smoothed-out normal-loss observations for two cars in the extreme-price ranges are given in Tables 4 and 5. These are the minimum losses which can be expected in trip driving, with no stops between successive fillings of the fuel tank. Observations under the more extreme conditions of town driving are not given, but indications are that they will be somewhat greater. In other words, over-all losses from the fuel system, when using the gasoline normally sold for the atmospheric temperatures indicated, will range from approximately 4 per cent to some higher value, depending upon the type of driving. These results can be readily converted to terms of octane-number loss by applying the relationship previously described in the test procedure.

**TABLE 5**

**Predicted Vapor Losses for Conditions of Steady Driving at 55 Miles Per Hour—Car "G"**

(Losses in Terms of Volume Per Cent)

| Reid Vapor Pressure | | Atmospheric Temperature (Deg. F.) 80 | 85 | 90 | 95 | 100 | 105 |
|---|---|---|---|---|---|---|---|
| 7.0 | Carburetor bowl | | | 0.90 | 1.20 | 1.45 | 1.70 |
| | Rear tank | | | 1.25 | 1.46 | 1.77 | ... |
| | Over-all | | | 2.15 | 2.66 | 3.22 | ... |
| 7.5 | Carburetor bowl | | 0.88 | 1.15 | 1.45 | 1.70 | 1.98 |
| | Rear tank | | 1.20 | 1.38 | 1.63 | 1.90 | ... |
| | Over-all | | 2.08 | 2.53 | 3.08 | 3.60 | ... |
| 8.0 | Carburetor bowl | 0.88 | 1.15 | 1.40 | 1.70 | 1.95 | |
| | Rear tank | 1.09 | 1.30 | 1.50 | 1.75 | 2.09 | |
| | Over-all | 1.97 | 2.45 | 2.90 | 3.45 | 4.04 | |
| 8.5 | Carburetor bowl | 1.12 | 1.40 | 1.65 | 1.95 | | |
| | Rear tank | 1.21 | 1.40 | 1.70 | 1.96 | | |
| | Over-all | 2.33 | 2.80 | 3.35 | 3.91 | | |
| 9.0 | Carburetor bowl | 1.38 | 1.65 | 1.90 | 2.20 | | |
| | Rear tank | 1.30 | 1.58 | 1.85 | 2.18 | | |
| | Over-all | 2.68 | 3.23 | 3.75 | 4.38 | | |
| 9.5 | Carburetor bowl | 1.62 | 1.88 | 2.15 | | | |
| | Rear tank | 1.45 | 1.75 | 2.04 | | | |
| | Over-all | 3.07 | 3.63 | 4.19 | | | |
| 10.0 | Carburetor bowl | 1.88 | 2.12 | | | | |
| | Rear tank | 1.60 | 1.92 | | | | |
| | Over-all | 3.48 | 4.04 | | | | |
| 10.5 | Carburetor bowl | 2.12 | 2.38 | | | | |
| | Rear tank | 1.80 | 2.13 | | | | |
| | Over-all | 3.92 | 4.51 | | | | |
| 11.0 | Carburetor bowl | 2.38 | | | | | |
| | Rear tank | 2.00 | | | | | |
| | Over-all | 4.38 | | | | | |

Vapor-Lock Region

### Advertising Head

H. S. Schuler has been appointed division manager of industry advertising of the Westinghouse Electric & Mfg. Co., it is announced by J. M. McKibbin, sales promotion and apparatus advertising manager.

More than 30% of employes of General Electric Co. at Schenectady, N. Y., now drive automobiles to work, as compared to less than 12% in 1929, it was shown in a survey just completed.

International Harvester Co. announces the retirement of C. F. Biggert, vice president in charge of the company's iron and coal mines and Wisconsin Steel Works. He was succeeded Nov. 1 by G. E. Rose who has been Mr. Biggert's assistant for the past year.

W. Joseph Cullen, formerly staff engineer for Sinclair Refining Co., has been made associate editor of Chek-Chart. Having been associated with C. M. Larson for eight years, Mr. Cullen brings an intimate knowledge of the technology of lubricants and automotive vehicles to the organization. The editorial staff now carries six editors and engineers, with more than a dozen assistants. Increase in personnel and equipment has made it necessary to enlarge office quarters in Chicago.

# New Equipment

## AND THE MANUFACTURERS

### Demonstration Tour

Opportunity to view the latest in fuel oil delivery equipment was provided by Fruehauf Trailer Co. in co-operation with Gar Wood Industries and Studebaker Corp. in sending a unit on a demonstration tour covering over 35 principal cities. The unit consisted of a Fruehauf trailer equipped with a Gar Wood 1500-gallon, 4-compartment tank. A Studebaker cab-over-engine tractor-truck was used.

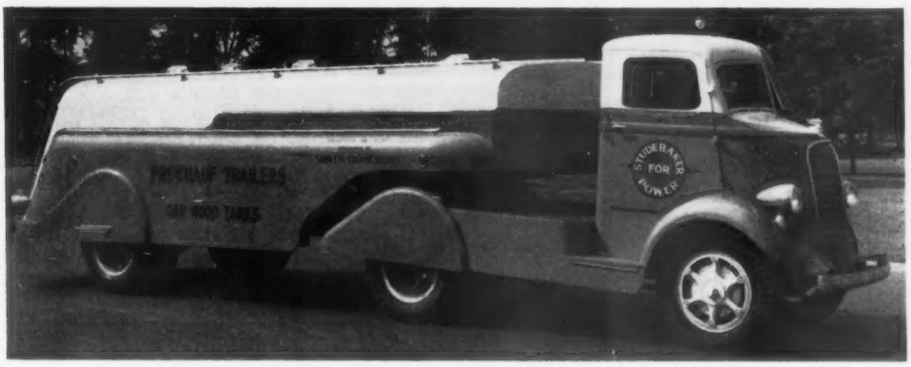
The unit featured Fruehauf's patented power 5th wheel, which transmits power from the tractor to the pump located on the trailer through a series of gears and shafts, eliminating hose connections.

New models are powered by a wide range of Hercules truck engines, featuring 2½-inch seven-bearing crank shafts, full length water jackets, force feed lubrication, and other accessories. Rear axles are Timken full-floating bevel-drive type. Oversize "fish belly" type frames are used in all models.

* * *

### Fuel Oil Fill Signal

Ventalarm, a new device being marketed by Scully Signal Co., 88 First St., Cambridge, Mass., is an oil burner tank safety signal which tells the driver when the tank is filled. The device is installed in the vent line of the fuel tank and operates on the air displaced by oil entering the tank. When the level in the tank reaches the opening in the whistle stem the whistle stops which is a signal for cutting off the supply. When pressure exceeds 1¾ ounces excess air is bypassed. The device eliminates the necessity for the driver to enter a customer's home for any purpose thus saving time for both customer and driver.




* * *

### Truck Brake Lining

Average brake lining mileages of a number of trucks operated by Imperial Oil Co., Ltd., are said to be over 300,000 miles. The trucks are in daily service delivering oil and gasoline in Woodstock, Hamilton, and London, Ontario. It is estimated brake applications average 300 daily. Brakes are of a new type introduced in Canada three years ago and are now being produced for trucks and busses in the U. S. by Linderman Devices, Inc., New York.

* * *

### Distillate Hose

Prenite Distillate hose is the newest addition to the line of fuel oil hose offered by The B. F. Goodrich Co., Akron, Ohio. It is designed especially for use on tank trucks where the liquid is permitted to stand in the hose at all times. Cover, insulation and tube of this new hose are made from compounds of Neoprene. Reel lengths of 250 feet are available in 1 to 1½ inch sizes.

* * *

### 12 Federal Models

Featuring new streamlining by Henry Dreyfuss, 12 new trucks are being introduced for 1938 by Federal Motor Truck Co., Detroit. Capacities range from ¾-ton to five tons. The new design features spacious cabs designed for passenger-car comfort, safety and increased driving vision.

Power units are mounted well forward on the chassis for better load distribution.

* * *

### Spark Plugs

Auto-Lite spark plugs have been adopted as standard factory equipment by Nash, Plymouth and DeSoto for 1938, it is announced by The Electric Auto-Lite Co. The company is now rushing an expansion program which will triple the output of its spark plug plant at Fostoria, Ohio.

* * *

### Trade-Marks

Acheson Colloids Corp., Port Huron, Mich., points out, in view of recent controversies concerning trade-marks, that "dag" is a well protected trade-mark when used alone or as a suffix in connection with its colloidal products.

* * *

### Form Sales Organization

The Lubri-Zol Corp., Cleveland, announces a new sales organization, Lubri-Zol Sales Co., to market its Solvenized gasoline concentrate, Solvenoil concentrate, Anglamol and other additive agents for improvement of lubricants.

F. A. Nason, vice president and general manager of Lubri-Zol, will be president of the new company. T. L. Holland, formerly president of Anglo-American Chemical Corp., will be vice president. Treasurer is K. H. Smith, president of Lubri-Zol, and secretary will be D. K. Ford.

* * *

### Boiler Service Unit

Bulletin 260-B14B, descriptive of automatic boiler service units, has been issued by the Turbine Pump Division of the Roots-Connersville Blower Corp., Connersville, Ind. Three types of equipment are presented: condensate return for all gravity systems, combination boiler make-up and condensate return and direct feed boiler supply. Sizes offered cover a range up to 150 pounds boiler pressure, for a maximum of 68,000 square feet of direct radiation.

* * *

### Conveyor Belt

The B. F. Goodrich Co., Akron, O., has announced a new conveyor belting featuring cord construction, which is said to give considerably longer wear than belts of the fabric-carcass type.

* * *

A completely revised edition of the booklet "Machining Aluminum" is available by addressing the Aluminum Co. of America, Pittsburgh.

* * *

### High Mark In Sales

The year 1937 has proved the most notable in the history of International motor trucks, recording new high marks in sales, engineering, and expansion, according to P. V. Moulder, manager, motor truck sales, International Harvester Co., Chicago.

* * *

### Hard Facing

Haynes Stellite Co., Kokomo, Ind., has issued a booklet listing and briefly describing 18 company books, reprints, and folders dealing with hard-facing alloys, cutting tools, and alloys for chemical processing equipment.

* * *

### Is Made Treasurer

F. H. Payne, president of American Meter Co., was elected treasurer of the company at a recent board meeting to fill a vacancy created by the death of Donald McDonald. John Van Norden was elected secretary and assistant treasurer. Van Norden was formerly assistant secretary. He is now in charge of the New York general offices.

### New Committee Officers

BIRMINGHAM, Ala., Nov. 9. — The Jefferson County Petroleum Industries Committee elected D. J. Merritt, Birmingham, chairman and adopted a program calling for elimination of "burdensome" taxes at the annual meeting this week.

W. W. McIntyre was elected secretary and the following vice chairmen chosen: W. W. Hooten, Birmingham, first vice chairman; A. D. Griffin, Tarrant City; Frank Burton, Fairfield; John V. McCraney, Leeds; Clyde Gillispie, Warrior; A. D. Brown, Homewood; E. P. Ashley, Ensley; Ray Skewes, Lipscomb; Robert Brown, Pratt City; J. M. McNabb, J. C. Goodwin and J. C. Rollins, Birmingham.

# TRADEMARKS

The following are trade mark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

**Pub. Oct. 12, 1937**

PRO-TEX, Ser. No. 395,616. Paul Gibson, Richmond, Va. Filed July 24, 1937.

For Automobile Cleaner Which is a Solvent Cleaner for Removing Film and Dirt from the Finished Surface, and a Cleaner for Upholstery, Rugs, Fabrics and the Like.

VISCOL, a picture of a duck with the name "Visky" on its cap, and the words "Viscolized Waterproof," (The word "Waterproof" is disclaimed apart from the mark). Ser. No. 396,247. The Viscol Company, Stamford, Conn. Filed Aug. 10, 1937.

For Oils and Greases for Waterproofing, Making Flexible, Stuffing, Finishing, and Improving the Texture of Leather and Fibrous Goods.

MECHANICS CHOICE, Ser. No. 396,235. McKale's Inc., Seattle, Wash. Filed Aug. 10, 1937.

For Lubricating Oil.

SULFIX, Ser. No. 396,549. The Sherwin-Williams Co., Cleveland, Ohio. Filed Aug. 18, 1937.

For Insecticides and Fungicides.

* * *

**Pub. Oct. 19, 1937**

KELCALOY, Ser. No. 395,864. The M. W. Kellogg Company, Jersey City, N. J., and New York, N. Y. Filed July 31, 1937.

For Pressure Vessels, Drums, and Tanks to be Used in the Oil Refining Petroleum, and Chemical Industries.

ESSO, Ser. No. 396,844. Standard Oil Company of New Jersey, Wilmington, Del. Filed Aug. 27, 1937.

For Leather Oil.

EXCELSIOR, Ser. No. 396,027. Jack Cramer, San Jose, Calif. Filed Aug. 5, 1937.

For Insecticide and Fungicide.

GLOCO ALLZONE, picture of globe with bear sitting on a cake of ice at the top of said globe, Ser. No. 395,365. Harold William Walter, doing business as General Research Laboratories, Muscatine, Iowa. Filed July 17, 1937.

For Anti-Freezing Solution for Radiators.

DIESO-LIFE, Ser. No. 396,173. Union Oil Company of California, Los Angeles, Calif. Filed Aug. 7, 1937.

For Lubricating Oils.

BALCRANK, Ser. No. 391,265. The Cincinnati Ball Crank Co., Cincinnati, Ohio. Filed Apr. 13, 1937.

For Machine Handles for Machine Tools, Such as Planers, Shapers, Lathes, Milling Machines, Drill Presses and Special Machinery, Spark and Throttle Joints, Greasing Pumps, Guns, Chucks and Fittings, for Use on Lubricating Guns, Hose, and Other Lubricating Equipment and on Air Hose, Grease Hose Control Handles, Booster Attachments for Grease and Oil Lines, Grease Nozzles, Grease Cups, Hose Reels and Shaker Bars.

---

**Sept. Gasoline Demand**

WASHINGTON, Nov. 8.—Motor fuel demand in the U. S. totaled 47,245,000 barrels in September, an increase of 6.5 per cent over the corresponding month a year ago, the Bureau of Mines reported today. Exports reached 4,456,000 barrels, a gain of 79 per cent over September, 1936.

September crude production averaged 3,666,000 barrels, which was 46,600 barrels below the record of August. Daily average crude runs to stills rose to a new high mark of 3,450,000 barrels in September.

Domestic demand for gas oil and distillate fuels totaled 9,482,000 barrels in September, as compared with 8,238,000 barrels in the same month last year; residual fuel oils were up to 26,544,000 barrels as compared with 25,913,000 barrels.

---

ST. LOUIS, Nov. 6.—The new diesel towboat Kansas City-Socony is operating from St. Louis to St. Paul until better navigation stages prevail in the Missouri river to Kansas City.

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NATURAL GASOLINES

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# New Patents

Compiled by R. E. Burnham, patent and trademark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

**August 31, 1937**

**REFINING**

*Process for hydrocarbon oil conversion*—Joseph G. Alther, Chicago, Ill., assignor to Universal Oil Products Co. Filed April 17, 1929. No. 2,091,261.

*Fractional distillation*—Donald J. Bergman, Chicago, Ill., assignor to Universal Oil Products Co. Filed March 30, 1936. No. 2,091,349.

*Treatment of hydrocarbons*—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co. Filed Dec. 14, 1931. No. 2,091,354.

*Treatment of hydrocarbon oils*—Robert Pyzel, Chicago, Ill., assignor to Universal Oil Products Co. Filed Feb. 29, 1936. No. 2,091,375.

*Conversion of hydrocarbon oils*—Kenneth Swartwood, Chicago, Ill., assignor to Universal Oil Products Co. Filed March 26, 1936. No. 2,091,381.

*Synthesis of lubricating oils*—Frederick W. Sullivan, Jr., and Venderveer Voorhees, Hammond, Ind., assignors to Standard Oil Co. (Ind.). Filed March 21, 1931. No. 2,091,398.

*Solvent extraction of oils*—Frederic W. Sullivan, Jr., William H. Bahlke, and Arthur B. Brown, Hammond, Ind., and Fred F. Diwoky Chicago, Ill., assignors to Standard Oil Co. (Ind.). Filed March 22, 1933. No. 2,091,400.

*Conversion of hydrocarbon oil*—Alvin Engelstein, Chicago, Ill., assignor to Universal Oil Products Co. Filed Feb. 27, 1936. No. 2,091,437.

*Method of treating hydrocarbon oils*—John C. Black, Beverly Hills, and Marvin L. Chappell, Watson, Calif., assignors to Union Oil Co. Filed April 24, 1933. No. 2,091,624.

*Process of dewaxing mineral oils*—Leo D. Jones, Philadelphia, Pa. assignor to Sharples Specialty Co. Filed Oct. 5, 1932. No. 2,091,640.

*Apparatus for extracting petroleum, etc.*—Elliott B. McConnell, Cleveland Heights, Ohio, assignor to Standard Oil Co. (Ohio). Filed Nov. 16, 1934. No. 2,091,645.

*Working up of hydrocarbons and similar substances*—Emmerich v. Pongratz and Adam Immel, Germany, assignors to I. G. Farbenindustrie. Filed Aug. 17, 1931. No. 2,091,831.

*Treating oils in presence of clay*—Reginald K. Stratford, Sarnia, Ont., Canada, assignor to Standard Oil Development Co. Filed Feb. 21, 1935. No. 2,091,892.

*Apparatus for treating mineral oils*—Merrell R. Fenske and Wilbert B. McCluer, State College, Pa., assignors to Pennsyvania Petroleum Research Corp. Filed Sept. 6, 1933. No. 2,091,917.

**MISCELLANEOUS**

*Synthetic lubricating oils*—Frederick W. Sullivan, Jr., and Vanderveer Voorhees, Hammond, Ind., assignors to Standard Oil Co. (Ind.). Filed March 15, 1929. No. 2,091,399.

*Composition of matter (oil of improved viscosity-temperature co-efficient) and process*—Herman A. Bruson, Germantown, Pa., assignor to Rohm & Haas Co. Filed June 8, 1934. No. 2,091,627.

*Dispensing apparatus*—Harvey E. Marvel, Fort Wayne, Ind., assignor to S. F. Bowser & Co. Filed July 7, 1930. No. 2,091,644.

*Insecticides and fungicides*—Theron P. Remy, Los Angeles, Calif., and Waldersee B. Hendrey, Beacon, N. Y., assignors to Texas Co. Filed Aug. 2, 1934. No. 2,091,935.

*Treatment of acid sludge*—James M. Rumple, St. Louis, Mo., assignor to Chemical Construction Corp., New York, N. Y. Filed Dec. 6, 1933. No. 2,091,937.

*Production of $SO_2$ from acid sludge*—Peter S. Gilchcrist, Charlotte, N. C., and James M. Rumple, assignors to Chemical Construction Corp. Filed Dec. 6, 1933. No. 2,091,943.

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**Heads Sales Research**

CHICAGO, Nov. 9. — John W. Boatwright will be promoted from analyst to manager of the sales research department of Standard Oil Co. of Indiana Nov. 15, to succeed Jervis J. Babb, resigned. Boatwright joined the company in 1932 after teaching economics at Northwestern university and serving as industrial examiner for the Federal Trade Commission.


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| Cushing Ethyl Gasoline | |
| Cushing Anti-Knock Regular-Leaded | |
| Anti-Knock Pressure | 400 End Point |
| 60-62 | Better than U.S. Motor |
| 60-62 | Under 400 End Point |
| 64-66 | Under 375 End Point |
| 68-70 | Under 360 End Point |
| 42-44 | W.W.D.T. Kerosene |
| 38-40 | Light Straw Zero Distillate |
| 32-36 | Overhead uncracked Gas Oil |
| Cracked Fuel Oil | |

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Refining & Gasoline
COMPANY

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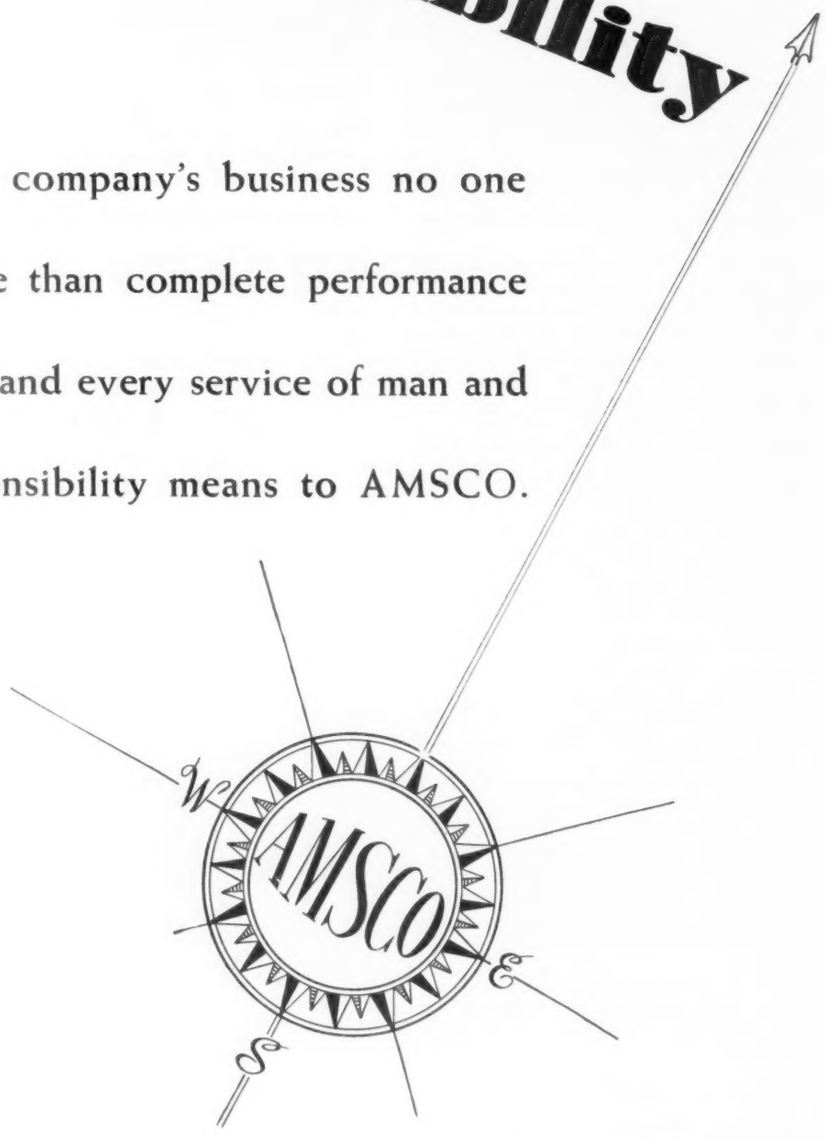


SHIPMENTS IN CARGOES, TANK CARS AND TRUCKS

•

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# Markets

## At A Glance . . .

**Mid-Western: Export query reported in Michigan market.**

**Pennsylvania: High flash stocks lower.**

**Mid-Continent: Motor fuel prices at lower levels.**

**Eastern Seaboard: Tank car and tank wagon gasoline prices down.**

**Coastal: Cargo markets inactive.**

**California: Retail competition keen on 3d grade gasoline.**

**Wax: Fully refined grades of wax lower.**

## Mid-Western

### Michigan Gets Export Query

N. P. N. News Bureau

CHICAGO, Nov. 8. — Reductions in tank car gasoline prices in the Mid-Western market during October had more than discounted the Nov. 3 cut of 0.3-cent in dealer and tank wagon consumer prices, sellers said, and general wholesale gasoline quotations were slightly unsettled, but unchanged during the balance of the week.

As the week ended, however, the market showed signs of slight activity, a state which characterized it during October. Offerings of all grades were free, with jobber buying limited.

There were reports current in Michigan last week that some refiners had received inquiry for an export cargo of 3,000,000 gallons of motor fuel.

If plans materialize, refiners said that movement should take virtually all of the surplus off the Michigan market. It also would represent the possible entrance of this district as a source of supply for future export movement.

One report was that sellers were presently attempting to obtain an export cargo rate for shipment from Michigan.

Kerosine was steady in both the Michigan and Mid-Western markets, with no reports of price shading encountered.

## Eastern

### Socony Reduces Gasoline

N. P. N. News Bureau

NEW YORK, Nov. 8. — The gradual easing in wholesale gasoline prices which has been reported along the eastern seaboard for several weeks, was climaxed the past week by a general reduction in tank car and tank wagon gasoline prices throughout New York state and New England.

The reduction, of 0.5 cent a gallon, was made effective Nov. 2 by Socony-Vacuum Oil Co., Inc. and was met later by other eastern marketers. At seaboard terminals, from New York harbor north, the reductions in unleaded gasolines brought tank car prices down to a level at which some gasoline had already been moving in tank car lots.

Tank car and barge gasoline markets continued somewhat unsettled and traders in many cases reported a lower trend, even after the general reductions. At New York harbor, barge prices for 65 octane and above gasoline dropped to 7 cents in some cases late in the week. At Boston, this grade was reported available for open, spot tank car movement at 7.25 cents. Contract prices, based, traders said, mostly on the tank wagon market, were reported at around 0.5 to 0.75 cent under spot prices.

Kerosine markets were reported fairly steady for wholesale delivery. Peddler kerosine prices were unsettled in many districts, traders reported.

## Mid-Continent

### Gasoline Prices Down

N. P. N. News Bureau

TULSA, Nov. 8. — Motor fuel prices in the Mid-Continent refining area drifted to fractionally lower levels the first week of November, declines amounting to approximately 0.125 cent a gallon on all grades.

Several factors were listed by refiners as contributing to the price recessions. As one refiner explained, this is the season of the year when jobbers keep inventories low and "accordingly do not order until they see the bottoms of their storage tanks." Despite the opinions of most sellers that the tank wagon reduction by S. O. Indiana the first week of November already had been discounted, the reduction nevertheless was credited with having an indirect effect on the gasoline market. Thirdly, the absence of any sizable coastwise or export buying from East Texas caused refiners in East Texas to press harder for domestic business, it was said.

Manufacturers of natural gasoline reported that the volume of business placed on their books for over November shipment was encouraging, but the demand in the open market was not sufficient to keep production from exceeding demand at some places. The result was an unsettled market, although prices generally remained unchanged throughout the week.

Kerosine demand apparently was spotty throughout the week although generally in fair demand. Buyers reported kerosine more freely offered in the East Texas area, while in Oklahoma and Kansas areas material for open market shipment was reported scarce.

Bright stock prices were unchanged but most western refiners said new buying was slow. The refiners continued to watch the Pennsylvania market closely.

### N. P. N. Gasoline Index

| | Dealer T.w. Cents per | Tank Car gal. |
|---|---|---|
| Nov. 8 | 10.44 | 6.41 |
| Month ago | 10.69 | 6.67 |
| Year ago | 10.03 | 6.24 |

*Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.*

*Tank car index is a weighted average of 13 wholesale markets for regular-grade gasoline.*

## Pennsylvania

### Cylinder Stocks Lower

N. P. N. News Bureau

CLEVELAND, Nov. 8. — Strong competition, particularly in Ohio, was reported to continue last week in the tank car gasoline market and a price of 7.25 cents per gallon f.o.b. refineries in the lower Pennsylvania field was fairly general for minimum 65 octane gasoline.

Kerosine sold daily at 5.375 cents, at 5.5 cents at some points and the market was firm at these prices, but refiners reported they were generally abreast of orders. Fuel oil continued scarce, however, and sales toward the high of price ranges were not infrequent.

Trading in 600 steam refined filterable cylinder stock was fairly active, according to reports, but 650 steam refined 600 flash and 630 flash, sold off generally at lower prices and were down 1 cent per gallon toward the close of the week. Some refiners said they were withholding their stocks from the market at present prices, however.

Movement against contracts on 16 cents per gallon 25 pour bright stock was reported good and spot sales general at this price.

Neutral oils remained unchanged, with some hesitancy in the market throughout the week. One seller reported heavy sales, however. Major companies and export brokers were taking much of the white crude scale wax in the field

# REFINERY TANK CAR MARKETS

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon, except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.*

## Gasoline *and* Naphtha

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **OKLAHOMA** | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 oct. & below | 4.25 – 4.625 | 4.375– 4.625 |
| 63-66 oct. | 4.625– 5.00 | 4.875– 5.125 |
| 67-69 oct. | 5.00 – 5.375 | 5.125– 5.375 |
| 70-72 oct. | 5.375– 5.75 | 5.50 – 5.875 |
| 60-62, 400 e.p. | *4.375– 4.50 | *4.50 – 4.75 |
| 64-66, 375 e.p. | *4.75 – 5.125 | *5.00 – 5.25 |
| 68-70, 350-360 e.p. | *5.00 – 5.375 | *5.125– 5.375 |
| **WESTERN PENNA.** | | |
| *Bradford-Warren*: | | |
| 52-54 naphtha | ..... | *5.875– 6.00 |
| Motor gasoline: | | |
| U. S. Motor (58-62°) | 6.00 – 6.25 | 6.00 – 6.25 |
| Min. 60 oct. | ..... | *7.50 – 7.75 |
| Min. 65 oct. | 7.75 | *7.75 – 8.00 |
| 64-66, 390 e.p. | 6.125– 6.25 | 6.125– 6.25 |
| 68-70, 350-360 e.p. | ..... | 6.25 – 6.375 |
| *Other districts*: | | |
| 52-54 naphtha | ..... | *5.375– 5.50 |
| 54-56 naphtha | 5.375– 5.50 | 5.375– 5.50 |
| Motor gasoline: | | |
| U. S. Motor (58-62°) | 5.375– 5.625 | 5.375– 5.625 |
| Min. 60 oct. | ..... | 7.25 – 7.625 |
| Min. 65 oct. | 7.25 – 7.875 | 7.25 – 7.875 |
| 64-66, 390 e.p. | 5.75 – 5.875 | 5.75 – 5.875 |
| 68-70, 350-360 e.p. | ..... | 6.00 – 6.125 |
| **CENTRAL MICHIGAN** (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group). | | |
| Str.-Run Gasoline | 5.00 – 5.50 | 5.00 – 5.50 |
| 64-66 octane gas. | 7.75 – 8.00 | 7.75 – 8.00 |
| 68-70 octane gas. | 8.125– 8.50 | 8.25 – 8.50 |
| **CALIFORNIA** (3c tax to be added to prices if used in state) | | |
| U. S. Motor: | | |
| 54-58, for instate shipment | 8.00 – 9.25 | 7.50 – 9.25 |
| 54-58, for outside state shipment | 8.50 – 9.00 | 8.25 – 9.00 |
| 58-61, 375-400 e.p., 65 oct. & above | 8.75 – 9.75 | 8.50 – 9.75 |
| **†N. TEX.** (For shipment to Texas and N. Mex. destinations; Group 3 prices quoted on northern shipments). | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 oct. & below | 4.625– 4.875 | 4.625– 4.875 |
| 63-66 oct. | 5.125– 5.375 | 5.125– 5.375 |
| 67-69 oct. | 5.50 – 5.75 | 5.50 – 5.75 |
| 70-72 oct. | 5.75 – 6.00 | 5.75 – 6.00 |
| 60-62, 400 e.p. | *4.625– 4.875 | *4.625– 4.875 |
| **KANSAS** (For Kansas destinations only) | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 oct. & below | 4.50 – 4.75 | 4.675– 4.875 |
| 63-66 oct. | 5.00 – 5.375 | 5.125– 5.375 |
| 67-69 oct. | 5.375– 5.625 | 5.375– 5.625 |
| 70-72 oct. | 5.75 – 5.875 | 5.75 – 5.875 |
| **†W. TEX.** | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 oct. & below | 4.625– 4.75 | 4.625– 4.875 |
| 63-66 oct. | 5.125– 5.25 | 5.125– 5.375 |
| 67-69 oct. | 5.50 – 5.625 | 5.50 – 5.625 |
| 70-72 oct. | 5.75 – 5.875 | 5.75 – 6.00 |
| **†E. TEX.** | | |
| 60-62, 400 e.p. | *4.625– 4.75 | *4.625– 4.875 |
| **N. LA.** (For shipment within La. & into Ark.) | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 oct. & below | 4.75 – 5.00 | 4.875– 5.125 |
| 63-66 oct. | 5.00 – 5.25 | 5.125– 5.25 |
| 67-69 oct. | 5.25 – 5.50 | 5.50 – 5.625 |
| 70-72 oct. | 5.75 – 5.875 | 5.75 – 5.875 |
| **ARKANSAS** (For shipment within Ark. & into La.) | | |
| U. S. Motor: (a) (Octane Test L-3) | | |
| 62 octane & below | 4.75 | ‡4.875 |
| 67-69 oct. | 5.50 | ‡5.625 |
| **OHIO** (Quotations of S. O. Ohio. Delivered anywhere in Ohio). | | |
| U. S. Motor | 8.25 | 8.375 |
| Above 65 oct. | 8.50 | 8.625 |

## Natural Gasoline

(Prices are those to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, S. W. Texas or Kans.)

| | | |
|---|---|---|
| **F.O.B. GROUP 3** | | |
| Grade 26-70 | 4.00 – 4.25 | 4.25 |

*Nominal.

‡Only one refiner quoting.

†Refiners report they generally receive from 0.25c to 0.5c per gal. more for gasoline & kerosine for local or differential territory shipment.

(a) In line with National Petroleum News' policy of reflecting general trade practice, the above revisions in octane brackets, determined according to L-3 method, for U. S. Motor gasoline, have been made in the Okla. and Kans. markets, effective Sept. 20, 1937; in North and West Texas, Arkansas, and North Louisiana, Oct. 4. Formerly, octane numbers were: 62 & below, 63-67, and 68-70.

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **Natural Gasoline (Cont'd)** | | |
| **F.O.B. BRECKENRIDGE** | | |
| *Grade 26-70 | 3.875– 4.125 | 4.125 |
| **CALIFORNIA** (F.o.b. plants in Los Angeles basin) | | |
| 75-83, 350-375 e.p. for blending | 7.25 – 7.75 | 7.25 – 7.75 |

*Correction: 4.125c is correct price for F.O.B. Breckenridge, Grade 26-70 for Oct. 25 instead of price published Oct. 27, issue, page 86.

## Kerosine

| | | |
|---|---|---|
| **WESTERN PENNA.** | | |
| *Bradford-Warren*: | | |
| 45 w.w. | 5.375– 5.50 | 5.375– 5.50 |
| 46 w.w. | 5.50 – 5.625 | 5.50 – 5.625 |
| 47 w.w. | 5.625– 5.75 | 5.625– 5.75 |
| *Other districts*: | | |
| 45 w.w. | 5.375– 5.50 | 5.375– 5.50 |
| 46 w.w. | 5.50 – 5.625 | 5.50 – 5.625 |
| 47 w.w. | 5.625– 5.75 | 5.625– 5.75 |
| **CENTRAL MICHIGAN** (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group). | | |
| 47-49 w.w. | 5.05 – 5.30 | 5.05 – 5.30 |
| **OKLAHOMA** | | |
| 41-43 | 4.00 – 4.25 | 4.00 – 4.25 |
| 42-44 w.w. | 4.25 – 4.375 | 4.25 – 4.375 |
| **KANSAS** (For Kansas destinations only). | | |
| 41-43 w.w. | 4.375– 4.50 | 4.375– 4.50 |
| 42-44 w.w. | 4.50 – 4.625 | 4.50 – 4.625 |
| **†N. TEX.** (For shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments). | | |
| 41-43 w.w. | 4.25 – 4.375 | 4.25 – 4.375 |
| **†E. TEX.** | | |
| 41-43 w.w. | *4.00 – 4.125 | *4.00 – 4.125 |
| **N. LA.** (For shipment within La. and into Ark.). | | |
| 41-43 w.w. | 4.50 | 4.50 |
| **ARK.** (For shipment within Ark. and into La.). | | |
| 41-43 w.w. | ‡4.50 | ‡4.50 |
| **CALIFORNIA** | | |
| 40-43 w.w. | 6.25 – 7.00 | 6.25 – 7.00 |

## Gas *and* Fuel Oils

| | | |
|---|---|---|
| **WESTERN PENNA.** | | |
| *Bradford-Warren*: | | |
| 36-40 | 5.00 – 5.125 | 5.00 – 5.125 |
| *Other districts*: (Excluding Pittsburgh District Prices). | | |
| 36-40 | 4.75 – 4.875 | 4.75 |
| **CENTRAL MICHIGAN** (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group). | | |
| P.W. Distillate | 4.875– 5.25 | 4.875– 5.25 |
| No. 3 gas oil, str. | 4.50 – 4.75 | 4.50 – 4.75 |
| U.G.I. gas oil | 4.375– 4.50 | 4.375– 4.50 |
| *Fuel Oils* (Vis. at 100): | | |
| 500-700 Vis. | 3.25 – 3.50 | 3.25 – 3.50 |
| 300-500 Vis. | 3.375– 3.75 | 3.375– 3.75 |
| 100-300 Vis. | 3.50 – 4.25 | 3.50 – 4.25 |
| **OKLAHOMA** | | |
| No. 1 white | 4.00 – 4.125 | 4.00 – 4.125 |
| No. 1 straw | 3.75 – 4.00 | 3.75 – 4.00 |
| No. 2 straw | 3.625– 3.875 | 3.625– 3.875 |
| No. 2 dark | 3.50 – 3.625 | 3.50 – 3.625 |
| U. G. I. gas oil | *3.375 | *3.375 |
| 28-30 zero | *3.50 – 3.625 | *3.50 – 3.625 |
| 28-30 | ‡$1.35 | ‡$1.35 |
| 24-26 | ‡$0.925 | ‡$0.925 |
| 18-22 | *$0.825–$0.90 | *$0.825–$0.90 |
| 14-16 | *$0.80 –$0.85 | *$0.80 –$0.85 |
| **KANSAS** (For Kans. destinations only). | | |
| No. 1 p.w. fuel oil | 4.125– 4.25 | 4.125– 4.25 |
| 10-14 fuel oil | $0.725–$0.775 | $0.725–$0.775 |
| **N. TEX.** (For shipment to Texas and N. Mex.; Group 3 prices quoted on northern shipments). | | |
| No. 1 white | *4.125 | *4.125 |
| U. G. I. gas oil | 3.00 – 3.125 | 3.00 – 3.125 |
| 24-26 | $0.85 –$0.875 | $0.85 –$0.875 |
| 18-22 | $0.80 –$0.825 | $0.80 –$0.825 |
| **N. LA.** (For shipment within La. and into Ark.). | | |
| No. 2 | 3.50 – 3.625 | 3.50 – 3.625 |
| 20-24 | $1.10 –$1.15 | $1.10 –$1.15 |
| 16-20 | $0.95 –$1.00 | $0.95 –$1.00 |
| 10-14 | $0.80 –$0.85 | $0.80 –$0.85 |
| **ARK.** (For shipment within Ark. and into La.). | | |
| No. 2 | ‡3.75 | ‡3.75 |
| 28-30 gas oil, zero | ‡3.50 | ‡3.50 |
| **CALIFORNIA** | | |
| *San Joaquin Valley*: | | |
| Heavy fuel | $0.60 –$1.00 | $0.70 –$1.00 |
| Light fuel | $0.85 –$1.10 | $0.85 –$1.10 |
| Diesel fuel (per gal.) | 3.75 – 5.00 | 4.00 – 5.00 |
| Stove dist. (per gal.) | 4.25 – 7.00 | 4.50 – 7.00 |
| *Los Angeles* | | |
| Heavy fuel | $0.65 –$1.10 | $0.65 –$1.10 |
| Light fuel | $0.90 –$1.20 | $0.90 –$1.20 |
| Diesel fuel (per gal.) | 3.50 – 5.00 | 3.50 – 5.00 |
| Stove dist. (per gal.) | 3.75 – 7.00 | 3.75 – 7.00 |

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **Gas and Fuel Oils (Cont'd** | | |
| *San Francisco*: | | |
| Heavy fuel | $1.15 | $1.15 |
| Light fuel | $1.25 | $1.25 |
| Diesel fuel (per gal.) | 5.50 | 5.50 |
| Stove dist. (per gal.) | 7.50 | 7.50 |

*Note*: All above heavy fuels meet Pacific specification 400: light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

## Neutral Oils

**WESTERN PENNA.**

*Viscous Neutrals (Viscosity at 70° F.)*

| | | |
|---|---|---|
| **200 Vis. (180 at 100°) No. 3 col., 420-425 fl.:** | | |
| 0 p.t. | 25.00 –25.50 | 25.00 –25.50 |
| 10 p.t. | 24.00 –24.50 | 24.00 –24.50 |
| 15 p.t. | 23.50 –24.00 | 23.50 –24.00 |
| 25 p.t. | 22.50 –23.00 | 22.50 –23.00 |
| **180 Vis. (165 at 100) No. 3 col., 410-415 fl.:** | | |
| 25 p.t. | 21.00 –21.50 | 21.00 –21.50 |
| **150 Vis. (143 at 100) No. 3 col., 400-405 fl.:** | | |
| 0 p.t. | 21.00 –21.50 | 21.00 –21.50 |
| 10 p.t. | 20.00 –20.50 | 20.00 –20.50 |
| 15 p.t. | 19.50 –20.00 | 19.50 –20.00 |
| 25 p.t. | 18.50 –19.00 | 18.50 –19.00 |

**SOUTH TEXAS**

| Vis. Color | | |
|---|---|---|
| Pale Oils: (*Vis. at 100° F.; p.t. 0*) | | |
| 100 No. 1½-2½ | 5.25 – 5.50 | 5.25 – 5.50 |
| 200 No. 2-3 | 7.25 – 7.50 | 7.25 – 7.50 |
| 300 No. 2-3 | 7.75 – 8.00 | 7.75 – 8.00 |
| 500 No. 2½-3½ | 8.75 – 9.00 | 8.75 – 9.00 |
| 750 No. 3-4 | 9.25 – 9.50 | 9.25 – 9.50 |
| 1200 No. 3-4 | 9.75 –10.00 | 9.75 –10.00 |
| 2000 No. 4 | 10.00 –10.25 | 10.00 –10.25 |
| Red Oils: | | |
| 200 No. 5-6 | 7.25 – 7.50 | 7.25 – 7.50 |
| 300 No. 5-6 | 7.75 – 8.00 | 7.75 – 8.00 |
| 500 No. 5-6 | 8.75 – 9.00 | 8.75 – 9.00 |
| 750 No. 5-6 | 9.25 – 9.50 | 9.25 – 9.50 |
| 1200 No. 5-6 | 9.75 –10.00 | 9.75 –10.00 |
| 2000 No. 5-6 | 10.00 –10.25 | 10.00 –10.25 |

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

**MID-CONTINENT** (Vis. at 100° F.; F.o.b. Tulsa basis).

**(0 to 10 P.P.)**

| Vis. Color | | |
|---|---|---|
| Pale Oils: | | |
| 60-85—No. 2 | 5.50 | 5.50 |
| 86-110—No. 2 | 6.00 | 6.00 |
| 150—No. 3 | 9.00 | 9.00 |
| 180—No. 3 | 10.00 | 10.00 |
| 200—No. 3 | 10.50 | 10.50 |
| 250—No. 3 | 11.50 | 11.50 |
| 280—No. 3 | 12.50 | 12.50 |
| 300—No. 3 | 13.00 | 13.00 |
| Red Oils: | | |
| 180—No. 5 | 9.00 | 9.00 |
| 200—No. 5 | 9.50 | 9.50 |
| 250—No. 5 | 10.50 | 10.50 |
| 280—No. 5 | 11.50 | 11.50 |
| 300—No. 5 | 11.75 | 11.75 |

Note: Viscous oils, 15-25 p.p., generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

**CHICAGO** (Vis. at 100° F.)

| Pale Oils **0 to 10 p.p.: Vis. Color** | | |
|---|---|---|
| 60-85—No. 2 | 7.25 | 7.25 |
| 86-110—No. 2 | 7.75 | 7.75 |
| 150—No. 3 | 10.00 | 10.00 |
| 180—No. 3 | 11.00 | 11.00 |
| 200—No. 3 | 11.50 | 11.50 |
| 250—No. 3 | 12.50 | 12.50 |
| Red Oils: | | |
| 180—No. 5 | 10.00 | 10.00 |
| 200—No. 5 | 10.50 | 10.50 |
| 250—No. 5 | 11.50 | 11.50 |
| 280—No. 5 | 12.50 | 12.50 |
| 300—No. 5 | 12.75 | 12.75 |

**Viscous oils, 15 to 30 p.p. are quoted 0.5c lower, 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., are quoted 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

## Cylinder Stocks

**MID-CONTINENT** (F.o.b. Tulsa basis)

| Bright Stocks: | | |
|---|---|---|
| 190-200 Vis. at 210° D | 20.00 | 20.00 |
| 150-160 Vis. at 210° D: | | |
| 0 to 10 p.p. | 17.00 | 17.00 |
| 10 to 25 p.p. | 16.00 | 16.00 |
| 25 to 40 p.p. | 16.00 | 16.00 |
| 150-160 vis. at 210° E | 16.00 | 16.00 |

# MARATHON PERFORMANCE

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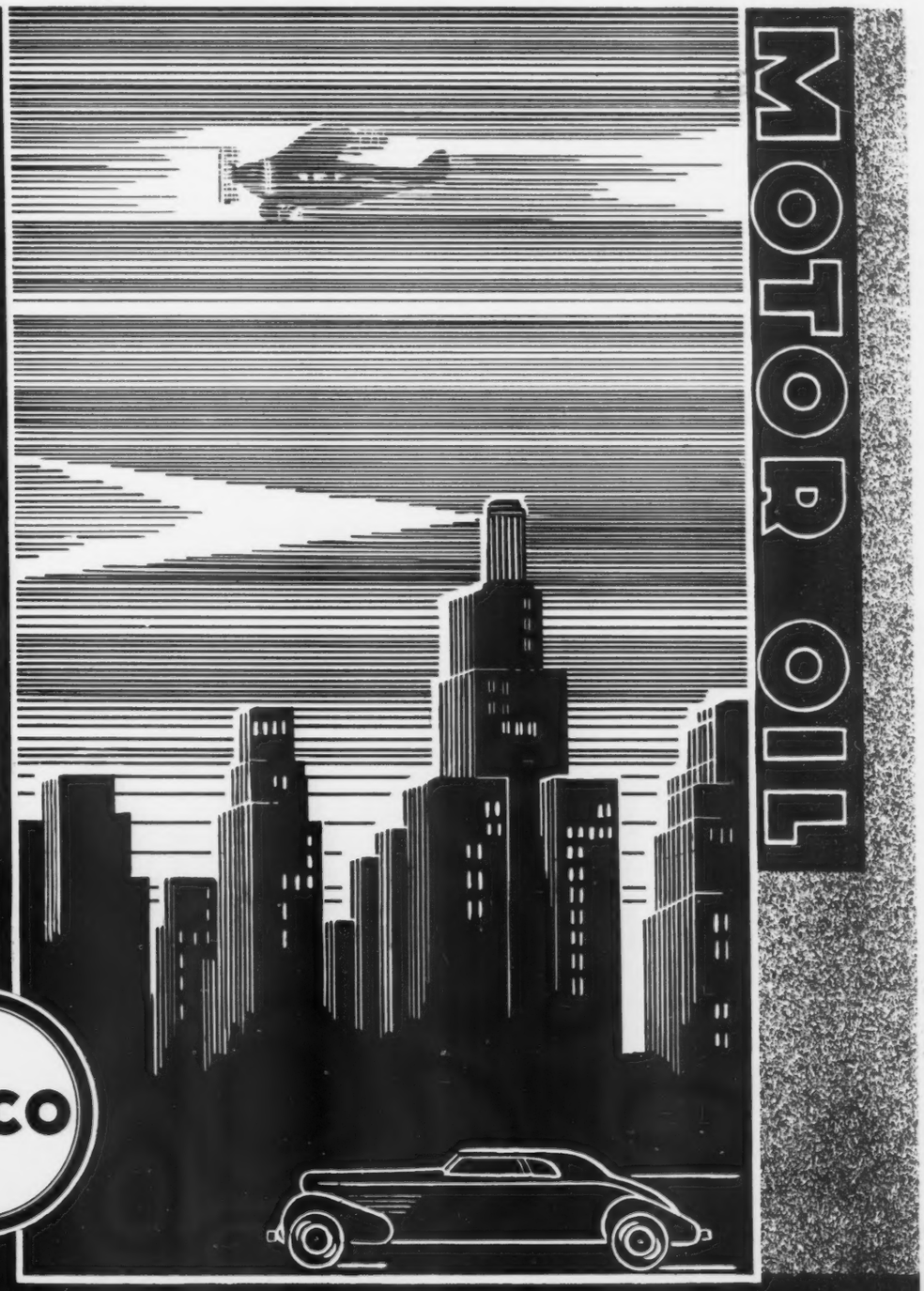



MARATHON PRODUCTS BEST IN THE LONG RUN

LINCO

## THE OHIO OIL COMPANY

GENERAL OFFICES - - - - FINDLAY, OHIO

ROBINSON, ILLINOIS TULSA, OKLAHOMA FT. WORTH, TEXAS

as fast as it was produced, traders said, at prices reported at 2.95 to 3 cents per pound, barreled resale price at New York, and industrial users were reported to be steadily placing orders.

## Coastal

**Gasoline Inactive**

N. P. N. News Bureau

NEW YORK, Nov. 8. — The cargo market for gasoline was inactive at the Gulf Coast during the past week, traders reported. Several indicated they had cargoes to offer, both for export and domestic coastwise lifting, but that buyers apparently were not available at present.

A French refiner was reported inquiring for a cargo of 64-66, 375 e.p. gasoline for late December lifting, but had not bought as the week closed. Reports that Roumania had not yet entered the open cargo market very actively were heard, although their quotations were said to be practically on a basis with those of the American Gulf suppliers.

Gas oil and kerosine cargo markets continued steady at the Gulf. Traders generally reported that gas oil was the tightest product at the Gulf at present. Quotations for export grades of gas oil and light fuel oils for domestic continued at 4.50 to 4.625 cents, for November or early December lifting. Part of the variance in price for the export grades was due to the diesel index rating of the product. One supplier reported offering a cargo of No. 2 fuel oil for late November-early December lifting but had not closed the sale up to the end of the week. He said he had been offered 4.50 cents but was holding out for 4.625 cents f.o.b. Gulf.

## California

**Foreign Inquiries Few**

N. P. N. News Bureau

LOS ANGELES, Nov. 6. — Pacific foreign buyers of California petroleum products evidently were taking a breathing spell after several months of intense activity. Certainly there was little new inquiry, although some interest was evidenced in spot lots of drummed aviation gasoline, for shipment to the Far East.

Domestic markets were featured by efforts of a large independent refiner to boost the tank wagon and tank truck and trailer prices on third-grade, competitive gasolines, one-half a cent a gallon. Although a week ago this refiner advanced prices on deliveries to service stations in the Los Angeles area to 12.50 cents on tank wagon and to 12.25 cents on tank truck and trailer, several other small plants did not meet the increase.

Observers expected to see a general return to the 12-cent price, which includes all tax, unless the individualists changed their policy in the next day or so. The cut-rate products, off-specification in some instances, caused an increase in service stations offering motor fuel for 12.9 cents, retail, in the Los Angeles area.

Efforts by a refiner in the San Joaquin

# Fuel Oil . . . . .

N. P. N. News Bureau

CHICAGO, Nov. 8. — Demand for light fuel oils slowed up somewhat in the Mid-Western market at the end of October and the first week of November.

Virtually all sellers here credited the talk of the uncertain crude situation with the slowing of demand.

Prices for Nos. 1, 2 and 3 grades continued firm, however, as offerings of these oils were limited.

Heavy fuel oils in Michigan and Mid-Valley to boost his price on heavy fuel oils above $0.60 per barrel failed and a large quantity was reported sold at that figure. The grade was 12 gravity and low in sulfur. Fuel oil from Wilmington crude, however, was firm at $0.70 a barrel, with few sales as low as $0.65.

Diesel oil and stove distillate continued in demand at prices generally unchanged from those of a week ago.

## Wax

**Fully Refined Lower**

NEW YORK, Nov. 8. — Lower prices for fully refined grades of wax for export movement were reported by some suppliers the past week. Others reported no change in this market, saying that demand was steady and that no distress wax was on the market at present.

Crude scale wax markets continued inactive. Quotations were heard on 124-126 white scale ranging from 2.85 cents a pound upward. Demand still was light, particularly from foreign buyers, traders reported. However, they said that movement was heavy enough to keep stocks at a fairly low level.

Western markets were soft. Several minor price reductions were recorded in the former market last week, and shading continued in both markets.

* * *

NEW YORK, Nov. 8. — Reductions of 10 cents a barrel in spot market prices of heavy fuel oils, both for ships' bunker and shore plant movement, featured eastern fuel oil markets during the past week.

The reduction was announced Nov. 1 by Standard of New Jersey and followed by one week its announcement of contract prices for 1938 bunker oil sales. By Nov. 5, the new spot prices were general along the seaboard. They ranged from $1.20 at Charleston, Savannah, Jacksonville and Tampa to $1.35 at Portland. New prices at Philadelphia, New York, Boston, Providence, Baltimore and Norfolk were $1.25.

Light fuel oils were unchanged during the week.

* * *

TULSA, Nov. 8. — Despite repeated inquiries from buyers no increased volume of light fuel oils was revealed in the Mid-Continent the first week of November. Particularly was this true of the No. 1, 2 and 3 grades.

Refiners making those products showed little inclination to draw from storage as yet to meet the constant demand for the oils. Several of them continued to ship only a small part of their production currently and continued to fill storage. Other refiners said they were so pressed with orders from regular accounts that they had not been able to put as much fuel in storage as they desired.

Little change was noted in the heavy fuel oils. Stocks were fairly steady.

## TANK WAGON MARKETS, HEATING OILS

*Prices in Effect Nov. 3, 1937*

*Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.*

| | No. 1 | No. 2 | No. 3 | No. 4 |
|---|---|---|---|---|
| **S. O. NEW JERSEY** | | | | |
| Newark, N. J. | * | 7.00 | 7.00 | 7.00 |
| Atlantic City, N. J. | * | 7.00 | 7.00 | 7.00 |
| Baltimore, Md. | 8.00 | 7.00 | 7.00 | 7.00 |
| Washington, D. C. | 8.50 | 7.75 | 7.75 | 7.75 |
| **SOCONY-VACUUM OIL CO. INC. (S. O. New York Division)** | | | | |
| New York City | * | 7.50 | 7.50 | 7.50 |
| Albany, N. Y. | * | 7.50 | 7.50 | 7.50 |
| Rochester, N. Y. | * | 7.50 | 7.50 | 7.50 |
| Boston, Mass. | * | 7.00 | 7.00 | 7.00 |
| Bangor, Me. | * | 8.00 | 8.00 | 8.00 |
| Manchester, N. H. | * | 8.00 | 8.00 | 8.00 |
| Burlington, Vt. | * | 8.00 | 8.00 | 8.00 |
| New Haven, Conn. | * | 7.50 | 7.50 | 7.50 |
| Providence, R. I. | * | 7 | 7 | 7 |

*Prices for No. 1 fuel in S. O. New Jersey and Socony-Vacuum territories same as for kerosine, which see in tank wagon table for various cities; prices change with kerosine.

| | No. 1 | No. 2 | No. 3 | No. 4 |
|---|---|---|---|---|
| **ATLANTIC REFINING** | | | | |
| Philadelphia, Pa. | 7.75 | 7.00 | 7.00 | 7.00 |
| Allentown, Pa. | 7.75 | 7.00 | 7.00 | 7.00 |
| Wilmington, Del. | 8.25 | 7.50 | 7.50 | 7.50 |
| Springfield, Mass. | 9.00 | 7.50 | .... | 7.50 |
| Worcester, Mass. | 9.00 | 7.50 | .... | 7.50 |
| Hartford, Conn. | 9.00 | 7.50 | .... | 7.50 |

**S. O. OHIO**

| | | | | |
|---|---|---|---|---|
| *Ohio Statewide | 8.00 | 8.00 | 7.50 | 6.75 |

*Note: S. O. Ohio prices are for hose dumps, bucket dumps are 0.5c per gallon higher.*

*Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga, Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

**S. O. INDIANA**

**Stanolex Fuel and Furnace Oils**

| | No. 1 Fuel | Stanolex Furnace |
|---|---|---|
| Chicago | †8.8 | 7.00 |
| Indianapolis | .. | *11.8 |
| Detroit | ... | 7.1 |
| Milwaukee | 8 | 7.3 |
| Minneapolis | 7.5 | 7.5 |
| Sioux City | 7.1 | 7.1 |
| St. Louis | 7.5 | 6.8 |
| Kansas City | 6.5 | 6.5 |

*Includes state tax of 4c.

†This price applies to 1 to 99 gals. deliveries; 150 gals. and over, 7c.

*Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations*

# REFINERY TANK CAR MARKETS

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.*

## Cylinder Stocks (cont'd)

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **Mid-Continent** (cont'd) | | |
| **120 Vis. at 210° D:** | | |
| 0 to 10 p.p. | 16.00 | 16.00 |
| 10 to 25 p.p. | 15.50 | 15.50 |
| 25 to 40 p.p. | 15.00 | 15.00 |
| 600 S.R. Dark Green | 5.00 – 7.50 | 5.00 – 7.50 |
| 600 S.R. Olive Green | 7.00 – 9.50 | 7.00 – 9.50 |
| 631 S.R. | ‡14.50 | ‡14.50 |
| Black Oil | 3.50 – 4.00 | 3.50 – 4.00 |
| **CHICAGO** (Viscosity at 210°) | | |
| **Unfiltered Steam Refined:** | | |
| 140 | 9.00 | 9.00 |
| 160 | 10.00 | 10.00 |
| 200 | 11.00 | 11.00 |
| **Bright stocks, 160 vis. at 210. No. 8 color:** | | |
| 0 to 10 p.p. | 18.75 | 18.75 |
| 15 to 25 p.p. | 17.75 | 17.75 |
| 30 to 40 p.p. | 17.25 | 17.25 |
| E filtered Cyl. Stock | 14.50 | 14.50 |

To obtain prices delivered in Chicago, add 0.25c per gal.

‡Only one refiner quoting.

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **WESTERN PENNA.** | | |
| 600 S.R. filterable | 9.00 – 9.50 | 9.00 – 9.50 |
| 650 S.R. | 12.50 –14.00 | 13.50 –14.00 |
| 600 fl. | 13.00 –14.00 | 14.00 –14.50 |
| 630 fl. | 17.00 –18.00 | 18.00 –18.50 |
| 600 Warren E | 14.00 –15.50 | 14.00 –15.50 |
| Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color: | | |
| 10 p.t. | 19.00 –19.50 | 19.00 –19.50 |
| 15 p.t. | 18.00 –18.50 | 18.00 –18.50 |
| 20 p.t. | 17.00 –17.50 | 17.00 –17.50 |
| 25 p.t. | 16.00 –16.50 | 16.00 –16.50 |

## Petrolatums

**WESTERN PENNA.** (Per lb., in barrels, carload lots. In tank cars, 0.5c per lb. less).

| | | |
|---|---|---|
| Snow white | 6.625– 6.75 | 6.625– 6.75 |
| Lily White | 5.625– 5.75 | 5.625– 5.75 |
| Cream White | 4.625– 4.75 | 4.625– 4.75 |
| Light Amber | 2.75 – 2.875 | 2.75 – 2.875 |
| Amber | 2.50 – 2.625 | 2.50 – 2.625 |
| Red | 2.125– 2.375 | 2.125– 2.375 |

## Wax

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **WESTERN PENNA.** (Per lb., f.o.b. N. Y. basis) | | |
| 122-124 w.c. scale, A.m.p. | 2.95 – 3.00 | 2.95 – 3.00 |
| 124-126 w.c. scale, A.m.p. | 2.95 – 3.00 | 2.95 – 3.00 |
| **OKLAHOMA** (Per lb. in bbls.; in a few instances, per lb. in burlap bags). | | |
| 124-126 w.c. scale, A.m.p. | 3.00 – 3.125 | 3.00 – 3.125 |

**CHICAGO** (In bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

| *Fully refined:* | | |
|---|---|---|
| 122-124 | 4.65 – 4.75 | 4.65 – 4.75 |
| 125-127 | 4.90 – 5.00 | 4.90 – 5.00 |
| 127-129 | 5.05 – 5.15 | 5.05 – 5.15 |
| 130-132 | **5.45 – 5.55 | **5.45 – 5.55 |
| 132-134 | **5.70 – 5.80 | **5.70 – 5.80 |
| 135-137 | **6.45 – 6.55 | **6.45 – 6.55 |

**Same prices quoted in bags or slabs loose.

# MID-WESTERN TANK CAR MARKET

*Prices are those made by Chicago sellers, on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts*

## Gasoline

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| U. S. Motor: | | |
| 62 oct. and below | 4.125– 4.50 | 4.125– 4.50 |
| 63-67 oct. | 4.75 – 5.25 | 4.75 – 5.25 |
| 68-70 oct. (regular) | 5.125– 5.625 | 5.125– 5.625 |
| 60-62, 400 e.p. | 4.25 – 4.625 | 4.25 – 4.625 |
| 64-66, 375 e.p. | **5.00 | **5.00 |
| 68-70, 350-360 e.p. | **5.25 | **5.25 |

## Kerosine

| | | |
|---|---|---|
| 41-43 w.w. | 4.00 – 4.25 | 4.00 – 4.25 |
| 42-44 w.w. | 4.125– 4.375 | 4.125– 4.375 |

**One seller quoting.

## Fuel *and* Gas Oils

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| Domestic: | | |
| No. 1 p.w. | 4.00 – 4.125 | 4.00 – 4.125 |
| No. 1 straw | 3.875– 4.00 | 3.875– 4.00 |
| No. 2 straw | 3.625– 3.75 | 3.625– 3.75 |
| No. 2 dark | 3.50 – 3.625 | 3.50 – 3.625 |
| No. 3 | 3.375– 3.50 | 3.375– 3.50 |
| No. 4 | $1.05 –$1.10 | $1.05 –$1.10 |
| No. 5 | $0.80 –$0.85 | $0.80 –$0.85 |
| Range oil | 4.00 – 4.125 | 4.00 – 4.125 |
| Industrial: | | |
| No. 4 | $0.95 –$1.10 | $0.95 –$1.10 |
| No. 5 | $0.80 –$0.85 | $0.80 –$0.85 |

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **Industrial** (cont'd) | | |
| No. 6 | $0.675–$0.725 | $0.675–$0.725 |
| U. G. I. gas oil | 2.875– 3.25 | 2.875– 3.25 |

## Naphtha and Solvent

| | | |
|---|---|---|
| Stoddard solvent | 6.375– 6.875 | 6.375– 6.875 |
| Cleaners' naphtha | 6.875– 7.375 | 6.875– 7.375 |
| V. M. & P. naphtha | 6.875– 7.375 | 6.875– 7.375 |
| Mineral spirits | 5.875– 6.375 | 5.875– 6.375 |
| Rubber solvent | 6.875– 7.375 | 6.875– 7.375 |
| Lacquer diluent | 7.875– 8.375 | 7.875– 8.375 |

# DAILY GASOLINE PRICES

*Daily range of gasoline prices as reported in PLATT'S OILGRAM. (Week Ended Nov. 5, 1937)*

| U. S. Motor, (Octane Number determined according to L-3 Method): | Nov. 1 | Nov. 2 | Nov. 3 | Nov. 4 | Nov. 5 |
|---|---|---|---|---|---|
| **62 octane and below:** | | | | | |
| Oklahoma | 4.375– 4.625 | 4.375– 4.625 | 4.375– 4.625 | 4.25 – 4.625 | 4.25 – 4.625 |
| *North Texas | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 |
| West Texas | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 | 4.625– 4.875 |
| **63-66 octane:** | | | | | |
| Oklahoma | 4.875– 5.125 | 4.875– 5.125 | 4.875– 5.125 | 4.75 – 5.00 | 4.75 – 5.00 |
| *North Texas | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 |
| West Texas | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 |
| **67-69 octane:** | | | | | |
| Oklahoma | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 | 5.125– 5.375 |
| *North Texas | 5.50 – 5.75 | 5.50 – 5.75 | 5.50 – 5.75 | 5.50 – 5.75 | 5.50 – 5.75 |
| West Texas | 5.50 – 5.625 | 5.50 – 5.625 | 5.50 – 5.625 | 5.50 – 5.625 | 5.50 – 5.625 |
| **70-72 octane:** | | | | | |
| Oklahoma | 5.50 – 5.875 | 5.50 – 5.875 | 5.50 – 5.875 | 5.50 – 5.875 | 5.375– 5.75 |
| *North Texas | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 |
| West Texas | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 | 5.75 – 6.00 |
| **U. S. Motor, Mid-Western Market (Group 3 Basis):** | | | | | |
| 62 octane and below | 4.125– 4.50 | 4.125– 4.50 | 4.125– 4.50 | 4.125– 4.50 | 4.125– 4.50 |
| 63-67 octane | 4.75 – 5.25 | 4.75 – 5.25 | 4.75 – 5.25 | 4.75 – 5.25 | 4.75 – 5.25 |
| 68-70 octane (regular) | 5.125– 5.625 | 5.125– 5.625 | 5.125– 5.625 | 5.125– 5.625 | 5.125– 5.625 |
| **Motor Gasoline, 60-64 oct.** | | | | | |
| New York harbor | †7.25 – 7.75 | †7.25 – 7.75 | †7.25 | †7.25 | †7.25 |
| Philadelphia district | †7.25 | †7.25 | †7.25 | †7.25 | †7.25 |
| Baltimore district | †7.25 – 7.50 | †7.25 – 7.50 | †7.25 – 7.50 | †7.25 – 7.50 | †7.25 – 7.50 |
| **Motor Gasoline, 65 oct. & above** | | | | | |
| New York harbor | †7.50 – 8.00 | †7.50 – 8.00 | †7.50 | †7.50 | †7.50 |
| Philadelphia district | †7.50 | †7.50 | †7.50 | †7.50 | †7.50 |
| Baltimore district | †7.50 – 7.75 | †7.50 – 7.75 | †7.50 – 7.75 | †7.50 – 7.75 | †7.50 – 7.75 |
| **U. S. Motor, 58-62°** | | | | | |
| Bradford-Warren (Western Penna.) | 6.00 – 6.25 | 6.00 – 6.25 | 6.00 – 6.25 | 6.00 – 6.25 | 6.00 – 6.25 |
| Other districts (Western Penna.) | 5.375– 5.625 | 5.375– 5.625 | 5.375– 5.625 | 5.375– 5.625 | 5.375– 5.625 |
| **Motor Gasoline, Min. 60 oct.** | | | | | |
| Bradford-Warren (Western Penna.) | †7.50 – 7.75 | †7.50 – 7.75 | ..... | ..... | ..... |
| Other districts (Western Penna.) | †7.25 – 7.625 | †7.25 – 7.625 | ..... | ..... | ..... |
| **Motor Gasoline, Min. 65 oct.** | | | | | |
| Bradford-Warren (Western Penna.) | †7.75 – 8.00 | †7.75 – 8.00 | †7.75 | †7.75 | †7.75 |
| Other districts (Western Penna.) | 7.25 – 7.875 | 7.25 – 7.875 | 7.25 – 7.875 | 7.25 – 7.875 | 7.25 – 7.875 |

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipment.

†Nominal.

# TANK WAGON MARKETS

*Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Nov. 8, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections*

## S. O. New Jersey

**ESSOLENE**

| | Consumer Tank Car | Dealer T.W. | Tax-es | Posted S.S. | Kero-sine T.W. |
|---|---|---|---|---|---|
| Atlantic City, N. J. | 8 | 9.5 | 4 | * | 9 |
| Newark, N. J. | 8 | 9.5 | 4 | * | 9 |
| Annapolis, Md. | 9.1 | 10.6 | 5 | * | 9.5 |
| Baltimore, Md. | 8.5 | 10 | 5 | 18.5 | 9 |
| Cumberland, Md. | 9.9 | 12.4 | 5 | * | 10 |
| Washington, D. C. | 8 | 9.5 | 3 | 16 | 9.5 |
| Danville, Va. | 9.7 | 12.2 | 6 | * | 12.9 |
| Norfolk, Va. | 8.5 | 11 | 6 | * | 11.5 |
| Petersburg, Va. | 8.8 | 11.3 | 6 | * | 11.7 |
| Richmond, Va. | 8.8 | 11.3 | 6 | * | 11.7 |
| Roanoke, Va. | 10 | 12.5 | 6 | * | 12.9 |
| Charleston, W. Va. | 9.3 | 11.8 | 6 | * | 12.6 |
| Parkersburg, W. Va. | 8.6 | 11.1 | 6 | * | 11.2 |
| Wheeling, W. Va. | 9.5 | 11 | 6 | * | 12.2 |
| Charlotte, N. C. | 9.9 | 12.4 | 7 | * | 12.6 |
| Hickory, N. C. | 10.4 | 12.9 | 7 | * | 13 |
| Mt. Airy, N. C. | 10.2 | 12.7 | 7 | * | 12.8 |
| Raleigh, N. C. | 9.5 | 12 | 7 | * | 12.1 |
| Salisbury, N. C. | 10 | 12.5 | 7 | * | 12.7 |
| Charleston, S. C. | 8.5 | 11 | 7 | * | 11.1 |
| Columbia, S. C. | 9.5 | 12 | 7 | * | 12.1 |
| Spartanburg, S. C. | 10.2 | 12.7 | 7 | * | 12.9 |

*S. O. New Jersey transferred stations to dealers; no prices available.

*Price basis to undivided dealers*: Dealer t.w. price less 0.5c per gal.

*Price basis to commercial consumers*: To contract accounts, purchasing at least one full compartment at a time by hose connection: Effective March 12, 1937, in New Jersey, and March 8 in Maryland, District of Columbia, and in Arlington and Fairfax Counties in Virginia, on yearly purchases: from 2,500 to 100,000 gals., consumer t.w. price at time and place of delivery; 100,000 gals. per year, consumer tank car price, plus 0.5c per gal. Generally consumer t.w. price in foregoing states is equivalent of dealer t.w. price, less 0.5c per gal.

Effective May 15, 1937, on Esolene and Esso (by tank wagon) in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax Counties, which see above), commercial consumers taking deliveries of 50 gals. (West Va. 100 gals.) or more at one time will be billed at the posted consumer t.w. price. Deliveries less than 50 gals. (West Va. 100 gals.) will be billed at 4c per gal. over posted consumer t.w. price. Generally, posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

*Kerosine Discount*: 1c off t.w. price for 25 gals or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

## Socony-Vacuum Oil Co., Inc.

***(S. O. New York Division)***

**SOCONY MOBILGAS**

| | Consumer Tank Car | "Split" Dealer T.W. | Tax-es | Total "Split" Dealer T.W. | Kero-sine T.W. |
|---|---|---|---|---|---|
| Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens) | 8 | 9.5 | *5 | 14.5 | 9 |
| Borough of Richmond (Staten Is.) | 8 | 9.5 | *5 | 14.5 | 9 |
| Albany, N. Y. | 8 | 9.5 | 5 | 14.5 | 9 |
| Binghamton, N. Y. | 8.75 | 10.3 | 5 | 15.3 | 9 |
| Buffalo, N. Y. | 8.54 | 10.05 | 5 | 15.05 | 8.5 |
| Jamestown, N. Y. | 8.28 | 10.8 | 5 | 15.8 | 8.25 |
| Plattsburg, N. Y. | 8.4 | 10.4 | 5 | 15.4 | 9.5 |
| Rochester, N. Y. | 8.67 | 10 | 5 | 15 | 8.5 |
| Syracuse, N. Y. | 9.7 | 10 | 5 | 15 | 9.5 |
| Danbury, Conn. | 8.3 | 9.8 | 4 | 13.8 | 9 |
| Hartford, Conn. | 8.1 | 9.6 | 4 | 13.6 | 9 |
| New Haven, Conn. | 8 | 9.5 | 4 | 13.5 | 9 |
| Bangor, Me. | 8.6 | 8.8 | 5 | 13.8 | 9.5 |
| Portland, Me. | 8 | 9.8 | 5 | 14.8 | 8.75 |
| Boston, Mass. | 8 | 9 | 4 | 13 | 8.5 |
| Concord, N. H. | 8.7 | 11.3 | 5 | 16.3 | 9.5 |
| Lancaster, N. H. | 9.6 | 12.3 | 5 | 17.3 | 10.25 |
| Manchester, N. H. | 8.5 | 10.8 | 5 | 15.8 | 9.5 |
| Providence, R. I. | 8 | 9.5 | 4 | 13.5 | 8.5 |
| Burlington, Vt. | 8.4 | 10.4 | 5 | 15.4 | 9.5 |
| Rutland, Vt. | 8.7 | 10.7 | 5 | 15.7 | 9 |

*Plus 2% city sales tax computed at time of each sale.

*Note*: Socony-Vacuum has transferred all service stations to dealers; no prices available.

*Price basis to undivided dealers*: 0.5c less than "split" dealer t.w.

*Price basis to commercial consumers*: Effective about Nov. 15, 1936 in New York and New England, for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal.; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

## Atlantic Refining

**ATLANTIC WHITE FLASH GASOLINE**

| | Commercial Tank Car | All Tax | Total Dealer T.W. | S.S. | Kero-sine T.W. |
|---|---|---|---|---|---|
| Philadelphia, Pa. | 7.5 | 5 | 14 | 17 | 10.5 |
| Pittsburgh | 8.5 | 5 | 15.5 | 20 | 11 |
| Allentown | 8.5 | 5 | 15 | ** | 11 |
| Erie | 8 | 5 | 14.5 | ** | 10 |
| Scranton | 8.5 | 5 | 15 | ** | 11 |
| Altoona | 8.5 | 5 | 15.5 | ** | 11 |
| Harrisburg | 8.5 | 5 | 15 | ** | 11 |
| Williamsport | 8.5 | 5 | 15.5 | ** | 11 |
| Dover, Del. | .... | 5 | 14.5 | ** | 11 |
| Wilmington | .... | 5 | 13.5 | ** | 11 |
| Boston, Mass. | .... | 4 | 13 | ** | 8.5 |
| Springfield, Mass. | .... | 4 | 13.3 | ** | 9 |
| Worcester, Mass. | .... | 4 | 14.3 | ** | 9 |
| Fall River, Mass. | .... | 4 | 13 | ** | 8.5 |
| Hartford, Conn. | .... | 4 | 14.1 | ** | 9 |
| New Haven, Conn. | .... | 4 | 14 | ** | 9 |
| Providence, R. I. | .... | 4 | 14 | ** | 8.5 |
| Atlantic City, N. J. | .... | 4 | 13.5 | ** | 9 |
| Camden, N. J. | .... | 4 | 13.5 | ** | 9 |
| Trenton, N. J. | .... | 4 | 13.5 | ** | 9 |
| Annapolis, Md. | .... | 5 | 15.6 | ** | 9.5 |
| Baltimore, Md. | .... | 5 | 15 | ** | 9 |
| Hagerstown, Md. | .... | 5 | 16 | ** | 10 |
| Richmond, Va. | .... | 6 | 16.3 | ** | 11.7 |
| Wilmington, N. C. | .... | 7 | 18.1 | ** | 11.3 |
| Brunswick, Ga. | .... | 7 | 16 | ** | *13 |
| Jacksonville, Fla. | .... | 8 | 17.5 | ** | 11 |

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

*Price basis to undivided dealers*: Dealer t.w. less 0.5c per gal

*Price basis to commercial consumers*: in Penna. and Delaware, effective Mar. 11, 1937, on yearly gasoline purchases to contract accounts taking full compartment hose deliveries, using 100,000 gals. or more per year, tank car price plus 0.5c per gal.; consumers taking less than 100,000 gals., undivided dealer price. Consumers under contract and not under contract, taking less than full compartment delivery, and consumers not under contract taking full compartment delivery, get divided dealer price. Consumers taking less than 25 gals., t.w delivery, get 4c above undivided dealer price.

*Discount on kerosine*: Effective Oct. 29, 1936, in Pennsylvania and Delaware 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time.

## S. O. Ohio

**SOHIO X-70 GASOLINE**

| | All Tax | Consumer T.W. | **Commercial T.W. | †Divided Dlr. | Kerosine T.W. |
|---|---|---|---|---|---|
| Ohio State-Wide | 5 | 16.5 | .... | 15.5 | *13 |
| Allen, Auglaize, Champaign, Darke, Geauga, Logan, Lorain, Mercer, Putnam, Shelby and Van Wert counties: | 5 | 16.5 | 15 | 15.5 | .... |
| Defiance county | 5 | 15.5 | .... | 14.5 | .... |
| Counties where prices are below statewide: | | | | | |
| Columbiana and Pickaway | 5 | 16 | .... | 15 | .... |
| Franklin and Knox | 5 | 15.5 | .... | 14.5 | .... |
| Paulding | 5 | 15 | 13.5 | 14 | .... |

**RENOWN GASOLINE (Third Grade)**

| | | | | | |
|---|---|---|---|---|---|
| Ohio State-Wide | 5 | 16 | .... | 15 | .... |
| Allen, Auglaize, Champaign, Geauga, Logan, Lorain, Mercer, Putnam, Shelby and Van Wert counties: | 5 | 16 | 14.5 | 15 | .... |
| Defiance county | 5 | 15 | .... | .... | .... |
| Erie, Fulton, Lucas, Ottawa, Sandusky, Williams and Wood | 5 | 16 | .... | 15 | .... |
| Hamilton county | 5 | 16.5 | .... | 15.5 | .... |
| Counties where prices are below statewide: | | | | | |
| Columbiana and Pickaway | 5 | 15.5 | .... | 14.5 | .... |
| Franklin and Knox | 5 | 15 | .... | 14 | .... |
| Paulding | 5 | 14.5 | 13 | 13.5 | .... |
| Counties where prices are above statewide: | | | | | |
| Butler, Clermont, Greene, Miami, Montgomery, Preble and Warren | 5 | 16.5 | .... | 15.5 | .... |
| Darke county | 5 | 16.5 | 15 | 15.5 | .... |

## S. O. Ohio Cont'd

**KEROSINE PRICES**

*(Off Statewide Level)*

Kerosine prices are off statewide level in the following counties:

Allen, Auglaize, Champaign, Columbiana, Darke, Geauga, Greene, Hardin, Logan, Mahoning, Mercer, Preble, Putnam, Shelby, Trumbull, Union, Van Wert and Wyandot: *12.5

Paulding *12

Ashtabula *11.5

Fayette, Licking, Madison, Pickaway, Portage and Summit *9.5

*Kerosine prices include 1c state tax.

**Commercial consumer t.w. posted price discontinued statewide, Oct. 20, 1937, except in 11 counties, these being: Allen, Auglaize, Champaign, Darke, Logan, Lorain, Mercer, Paulding, Putnam, Shelby and Van Wert.

*Commercial Tank Wagon Q.D.A. to contract accounts*: Effective Oct. 20, 1937, thru Ohio (except in 23 counties), on monthly purchases, off posted consumer t.w. price: 0 to 999 gals., 1c; 1,000 to 19,999 gals., 1.5c; 20,000 gals. and over, 2.5c. The 23 counties where Q.D.A. differs from statewide are: Allen, Auglaize, Champaign, Darke, Defiance, Erie, Fulton, Hamilton, Henry, Logan, Lorain, Lucas, Meigs, Mercer, Ottawa, Paulding, Putnam, Sandusky, Scioto, Shelby, Van Wert, Williams and Wood.

†This price also to authorized agents, exclusive of 0.5c rental.

*Sales tax*: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices", S. O. Ohio says.

On kerosine, prices to resellers and commercial consumers are posted generally at 3c per gal. below consumer t.w. price in any quantity, when such prices are on state-wide level.

## S. O. Kentucky

**CROWN GASOLINE**

***(Regular Grade)***

| | Consumer T.W. | All Tax | Total Consumer T.W. | Net Dlr. | Kerosine T.W. |
|---|---|---|---|---|---|
| Covington, Ky. | 13 | 6 | 19 | 16 | 11 |
| Lexington, Ky. | 13.5 | 6 | 19.5 | 16.5 | 11 |
| Louisville, Ky. | 13.5 | 6 | 19.5 | 16.5 | 10.5 |
| Paducah, Ky. | 13.5 | 6 | 19.5 | 16.5 | 10 |
| Jackson, Miss. | 13 | 7 | 20 | 17 | *13 |
| Vicksburg, Miss. | 13 | 7 | 20 | 17 | *13 |
| Birmingham, Ala. | 12 | *8 | 20 | 17 | 12 |
| Mobile, Ala. | 13 | *9 | 22 | 19 | 11 |
| Montgomery, Ala. | 13 | *9 | 22 | 19 | *14.5 |
| Atlanta, Ga. | 14 | 7 | 21 | 18 | *12 |
| Augusta, Ga. | 14 | 7 | 21 | 18 | *14 |
| Macon, Ga. | 14.5 | 7 | 21.5 | 18.5 | *14.5 |
| Savannah, Ga. | 12 | 7 | 19 | 16 | *12 |
| Jacksonville, Fla. | 13 | 7 | 20 | 17 | 10 |
| Miami, Fla. | 12.5 | 8 | 20.5 | 17.5 | 12.5 |
| Pensacola, Fla. | 13 | *9 | 22 | 19 | 12 |
| Tampa, Fla. | 11 | 8 | 19 | 16 | 10.5 |

**KYSO GASOLINE**

***(Third Grade)***

| | | | | | |
|---|---|---|---|---|---|
| Covington, Ky. | 12 | 6 | 18 | 15.5 | .... |
| Lexington, Ky. | 12.25 | 6 | 18.25 | 15.75 | .... |
| Louisville, Ky. | 12 | 6 | 18 | 15.5 | .... |
| Paducah, Ky. | 12 | 6 | 18 | 15.5 | .... |
| Jackson, Miss. | 11.5 | 7 | 18.5 | 16 | .... |
| Vicksburg, Miss. | 11.5 | 7 | 18.5 | 16 | .... |
| Birmingham, Ala. | 10.5 | *8 | 18.5 | 16 | .... |
| Mobile, Ala. | 10.5 | *9 | 19.5 | 17 | .... |
| Montgomery, Ala. | 10.5 | *9 | 19.5 | 17 | .... |
| Atlanta, Ga. | 12 | 7 | 19 | 16.5 | .... |
| Augusta, Ga. | 12 | 7 | 19 | 16.5 | .... |
| Macon, Ga. | 12.5 | 7 | 19.5 | 17 | .... |
| Savannah, Ga. | 9.5 | 7 | 16.5 | 14 | .... |
| Pensacola, Fla. | 11 | *9 | 20 | 17.5 | .... |

*Discounts to all tank wagon consumers*: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month.

*Discounts on kerosine*: Prices in Kentucky are net, but in other states subject to 2c discount.

**Taxes*: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel.

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma 2/25c per gal., in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls

# TANK WAGON MARKETS

*Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Nov. 8, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections*

## S. O. Indiana

| | Tax | Red Crown Total Cons. T.W. | Dealer Prices Red Crown | Stanolind | Kerosine T.W. |
|---|---|---|---|---|---|
| Chicago, Ill. | 4 | 15.2 | 13.2 | 12 | 10.1 |
| Decatur, Ill. | 4 | 15.2 | 13.7 | 13 | 10.1 |
| Joliet, Ill. | 4 | 15.2 | 13.7 | 13.2 | 10.1 |
| Peoria, Ill. | 4 | 15.2 | 13.7 | 13.2 | 10.1 |
| Quincy, Ill. | 4 | 15 | 13.8 | 12.4 | 9.9 |
| Indianapolis, Ind | 5 | 16.9 | 15.4 | 14.7 | *14.8 |
| Evansville, Ind | 5 | 16.7 | 15.2 | 13 | *14.6 |
| South Bend, Ind | 5 | 17.1 | 15.6 | 15.1 | *13.6 |
| Detroit, Mich. | 4 | 15.1 | 13.6 | 13.1 | 9.8 |
| Grand Rapids, Mich. | 4 | 16.2 | 14.7 | 14.2 | 10.9 |
| Saginaw, Mich. | 4 | 16 | 14.5 | 14 | 8.5 |
| Green Bay, Wis. | 5 | 16.9 | 15.4 | 14.7 | 10.8 |
| Milwaukee, Wis. | 5 | 16.5 | 15 | 14.2 | 10.4 |
| La Crosse, Wis. | 5 | 16.6 | 15.1 | 14.6 | 10.5 |
| Minneapolis-St. Paul | 5 | 16.6 | 15.1 | 14.6 | 10.5 |
| Duluth, Minn. | 5 | 17 | 15.5 | 15 | 10.9 |
| Mankato, Minn. | 5 | 16.6 | 15.1 | 14.6 | 10.5 |
| Des Moines, Ia. | 4 | 15 | 13.5 | 12.4 | *12.9 |
| Sioux City, Ia. | 4 | 15.2 | 13.7 | 13.2 | *13.1 |
| Davenport, Ia. | 4 | 15.2 | 13.7 | 13.2 | *13.1 |
| Mason City, Ia. | 4 | 15.4 | 13.9 | 13.4 | *13.3 |
| St. Louis, Mo. | *4 | 14.9 | 13.4 | 11.2 | 9.8 |
| Kansas City, Mo. | *4 | 14.6 | 13.1 | 12.6 | 8 |
| St. Joseph, Mo. | *4 | 14.6 | 12.4 | 12 | 9 |
| Fargo, N. D. | 4 | 16.6 | 15.1 | 14.6 | 11.5 |
| Minot, N. D. | 4 | 17.8 | 16.3 | 15.8 | 12.7 |
| Huron, S. D. | *5 | 17 | 15.5 | 15 | *10.9 |
| Wichita, Kans. | 4 | 14.1 | 12.4 | 10.5 | 8 |

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax; South Dakota, 0.1c sales tax. State Kerosine taxes: Indiana, 4c; Iowa, 3c, all included in above prices.

*Discount to commercial consumers*: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 1c on Stanolind (latter effective June 9, 1937). Minimum delivery is 25 gals.

## S. O. Nebraska

STANDARD RED CROWN GASOLINE

| | All Tax | T.W. Total | Dealer Total | Kerosine T.W. |
|---|---|---|---|---|
| Omaha, Neb. | 6 | 17.6 | 16.1 | 10.4 |
| McCook | 6 | 18 | 14 | 10 |
| Norfolk | 6 | 18 | 16.5 | 10.8 |
| North Platte | 6 | 18.4 | 16.9 | 11.2 |
| Scottsbluff | 6 | 19.1 | 15.9 | 11.9 |

*Discounts to commercial consumers*: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

## S. O. Louisiana

ESSOLENE

| | Consumer Tank Car | Dealer T.W. | Taxes | Posted S.S. | Kerosine T.W. |
|---|---|---|---|---|---|
| Little Rock, Ark. | 8.5 | 11 | 7.5 | ** | 11.5 |
| Alexandria, La. | 8.5 | 11 | 8 | ** | *12 |
| Baton Rouge, La. | 8 | 10.5 | 8 | 22 | *12 |
| New Orleans, La. | 8 | 10.5 | *10 | 24 | *13 |
| Lake Charles, La. | 9 | 11.5 | 8 | ** | *12.5 |
| Shreveport, La. | 7.5 | 10 | 8 | ** | *9.5 |
| Lafayette, La. | 9 | 11.5 | 8 | ** | *13 |
| Bristol, Tenn. | 11 | 12.25 | 8 | ** | 14.5 |
| Chattanooga, Tenn. | 10.5 | 13 | 8 | ** | 13.5 |
| Knoxville, Tenn. | 11 | 13.5 | 8 | ** | 14 |
| Memphis, Tenn. | 9 | 11.5 | 8 | ** | 12 |
| Nashville, Tenn. | 10 | 12.5 | 8 | ** | 11.5 |

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

**S. O. Louisiana transferred stations to dealers; no prices available.

*Price basis to dealers*: Undivided dealers get dealer price, less 0.5c

*Price basis to commercial consumers*: Effective May 15, 1937, thru territory; commercial consumers taking 50 gals. or more at one time will be billed at posted consumer t.w. price; those taking less than 50 gals. at one time will be billed at 4c per gal. over posted consumer t.w. price. Generally, the posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

## Humble Oil & Refining Co.

HUMBLE MOTOR FUEL

| | *T.W. | Taxes | *Total T.W. | S.S. | Kerosine T.W. |
|---|---|---|---|---|---|
| Dallas, Tex. | 8.5 | 5 | 13.5 | 17 | 8 |
| Ft. Worth, Tex. | 8.5 | 5 | 13.5 | 17 | 8 |
| Houston, Tex. | 9.5 | 5 | 14.5 | 18.5 | 8 |
| San Antonio, Tex. | 8.5 | 5 | 13.5 | 17 | 8 |

U. S. Motor Gasoline
*(Third Grade)*

| | | | | |
|---|---|---|---|---|
| Dallas, Tex. | 7 | 5 | 12 | 14 |
| Ft. Worth, Tex. | 7 | 5 | 12 | 14 |
| Houston, Tex. | 8.5 | 5 | 13.5 | 16.5 |
| San Antonio, Tex. | 7 | 5 | 12 | 14 |

*Price is t.w. price to all classes of dealers and consumers.

*Price basis to "open" dealers*: discount off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above, discount is 3.5c; 19c to 18.1c, 3c, and 18c and below, 2.5c. Humble motor fuel, 17.1c and above, 3.5c; 17 to 16.1c, 3c; and 16c and below, 2.5c; U. S. motor fuel, 15.1c and above, 2.5c; 15 to 14.1c, 2c; and 14c and below, 1.5c.

## Continental Oil

| | Conoco Bronze Ex-Tax | All Tax | Dealer Prices Total Conoco Bronze | De-mand | Kerosine T.W. |
|---|---|---|---|---|---|
| Denver, Colo. | 12.5 | 5 | 17.5 | 16.5 | 11.5 |
| Grand Junc., Colo. | 15 | 5 | 20 | 19 | 15 |
| Pueblo, Colo. | 11 | 5 | 16 | 14 | 10.5 |
| Casper, Wyo. | 13 | 5 | 18 | 17 | 11.5 |
| Cheyenne, Wyo. | 13 | 5 | 18 | 17 | 13 |
| Billings, Mont. | 14 | 6 | 21 | 18 | 15.5 |
| Butte, Mont. | 13.5 | 6 | 19.5 | 16.5 | 15.5 |
| Great Falls, Mont. | 15.5 | 6 | 21.5 | 20.5 | 15.5 |
| Helena, Mont. | 15.5 | 6 | 21.5 | 20.5 | 15.5 |
| Salt Lake City, Utah | 14.5 | 5 | 19.5 | 16.5 | 16 |
| Boise, Ida. | 15.5 | 6 | 21.5 | 20.5 | 18 |
| Twin Falls, Ida. | 15.5 | 6 | 21.5 | 20.5 | 18 |
| Albuquerque, N. M. | 11 | †6.5 | 17.5 | 16.5 | 12 |
| Roswell, N. M. | 12 | †6.5 | 18.5 | 15 | 10.5 |
| Santa Fe, N. M. | 13 | *7 | 20 | 16.5 | 12 |
| Muskogee, Okla. | 10 | 5 | 15 | 13 | 7 |
| Oklahoma City, Okla. | 9 | 5 | 14 | 12 | 8 |
| Tulsa Okla. | 9 | 5 | 14 | 11 | 6 |
| Ft. Smith, Ark. | 10.5 | 5 | 15.5 | 13.5 | 8 |
| Little Rock, Ark. | 10.5 | 7.5 | 18 | 15,125 | 9.5 |
| Texarkana, Ark. | 10.5 | 5 | 15.5 | 12.5 | 8.5 |

†Includes city tax of 0.5c.
*Includes 1c city tax

## S. O. California

STANDARD GASOLINE

| | T.W. | Taxes | Total T.W. | S.S. | Kerosine T.W. |
|---|---|---|---|---|---|
| San Francisco, Cal. | 13.5 | 4 | 17.5 | 18.5 | 11.5 |
| Los Angeles, Cal. | 13 | 4 | 17 | 18 | 9 |
| Fresno, Cal. | 14.5 | 4 | 18.5 | 19.5 | 12 |
| Phoenix, Ariz. | 15 | 6 | 21 | 22 | †16 |
| Reno, Nev. | 15 | 5 | 20 | 21 | 13 |
| Portland, Ore. | 14 | 6 | 20 | 21 | 13.5 |
| Seattle, Wash. | 14 | 6 | 20 | 21 | 13.5 |
| Spokane, Wash. | 17 | 6 | 23 | 24 | 16.5 |
| Tacoma, Wash. | 14 | 6 | 20 | 21 | 13.5 |

FLIGHT GASOLINE
*(Third Grade)*

| | | | | | |
|---|---|---|---|---|---|
| San Francisco, Cal. | 12 | 4 | 16 | 17 | .... |
| Los Angeles, Cal. | 11.5 | 4 | 15.5 | 16.5 | .... |
| Fresno, Cal. | 13 | 4 | 17 | 18 | .... |
| Reno, Nev. | 13.5 | 5 | 18.5 | 19.5 | .... |
| Phoenix, Ariz. | 13.5 | 6 | 19.5 | 20.5 | .... |
| Portland, Ore. | 12.5 | 6 | 18.5 | 19.5 | .... |
| Seattle, Wash. | 12.5 | 6 | 18.5 | 19.5 | .... |
| Spokane, Wash. | 15.5 | 6 | 21.5 | 22.5 | .... |
| Tacoma, Wash. | 12.5 | 6 | 18.5 | 19.5 | .... |

†Includes 5c state tax.

*Discount to dealers*: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

*To commercial consumers*: off tank wagon price: on single deliveries of 40 gallons and over, Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. Tank wagon delivery, less than 40 gals., 1c per gal. above posted t.w. price.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

## Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-STAR IMPERIAL GASOLINE

| | T.W. | Taxes | Total T.W. | Kerosine T.W. |
|---|---|---|---|---|
| Hamilton, Ont. | 16 | 6 | 22 | 17 |
| Toronto, Ont. | 16 | 6 | 22 | 17 |
| Brandon, Man. | 22.8 | 7 | 29.8 | 22.3 |
| Winnipeg, Man. | 20.5 | 7 | 27.5 | 20.7 |
| Regina, Sask. | 22.5 | 7 | 29.5 | 22 |
| Saskatoon, Sask. | 25.3 | 7 | 32.3 | 24.8 |
| Edmonton, Alta. | 22.5 | 7 | 29.5 | 24.2 |
| Calgary, Alta. | 20 | 7 | 27 | 21.5 |
| Vancouver, B. C. | 16 | 7 | 23 | 23 |
| Montreal, Que. | 15 | 6 | 21 | 17.5 |
| St. John, N. B. | 16 | 8 | 24 | 18.5 |
| Halifax, N. S. | 16 | 8 | 24 | 18.5 |

*Note*: Imperial Oil Ltd. has completed transfer of service stations to dealers; no s.s. prices available.

*Discounts* to undivided dealers, 1c off t.w price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

## Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil and unless otherwise noted). Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes. Prices in first four territories do not include state or federal taxes.

S. O. NEW JERSEY

| | *Ethyl T.C. | Tank Car | T.W. |
|---|---|---|---|
| Bayonne, N. J. | 19.5 | 9.5 | 12.5 |
| Baltimore, Md. | .... | 10 | 12.5 |
| Washington, D. C. | .... | .... | 13.1 |
| Richmond, Va. | .... | .... | 14.7 |
| Greensboro, N. C. | .... | .... | 15.7 |
| Raleigh, N. C. | .... | .... | 17.6 |
| Charleston, W. Va. | .... | .... | 12.2 |

*This is Stanavo Ethyl Aviation Gasolin 100 octane number, tank car price.

COLONIAL BEACON OIL CO.

| | T.W. |
|---|---|
| Brooklyn, N. Y. | 12.8 |
| Buffalo, N. Y. | 14.5 |
| Boston, Mass. | 15 |

S. O. PENNSYLVANIA

| | |
|---|---|
| Philadelphia, Pa. | 13.6 |
| Pittsburgh, Pa. | 14.4 |

S. O. LOUISIANA

| | |
|---|---|
| New Orleans, La. | 13.3 |
| Shreveport, La. | 13.6 |

Prices in above four territories are on a 74 octane grade aviation gasoline except where otherwise noted. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

*Note*: S.s. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO
*Thru Ohio*

| | Consumer T.W. | Tax | Total Consumer T.W. |
|---|---|---|---|
| Stanavo Ethy Aviation: | | | |
| 73 octane | 15.5 | 5 | 20.5 |
| 80 octane | 16.5 | 5 | 21.5 |
| 87 octane | 17.5 | 5 | 22.5 |

*Discounts*: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA

| | | | |
|---|---|---|---|
| Chicago, Ill. | 14.5 | 4 | 18.5 |
| Detroit, Mich. | 16 | 4 | 20 |
| Milwaukee, Wisc. | 14.8 | 5 | 19.8 |
| Minneapolis, Minn. | 14.9 | 5 | 19.9 |
| St. Louis, Mo. | 14.2 | *3 | 17.2 |
| Kansas City, Mo. | 13.9 | *4 | 17.9 |
| Fargo, N. D. | 15.9 | 4 | 19.9 |
| Huron, S. D. | 15.3 | 5 | 20.3 |

*Includes 1c city tax.
**Includes 0.1c to cover.

HUMBLE OIL & REFINING CO.

| | Tank Car |
|---|---|
| Baytown, Tex. (exclusive of taxes) | 8.5 |

CONTINENTAL OIL CO.

| | Dealer | Tax | Total Dealer |
|---|---|---|---|
| Denver, Colo. | 15.5 | 5 | 20.5 |
| Cheyenne, Wyo. | 16 | 5 | 21 |
| Helena, Mont. | 18.5 | 6 | 24.5 |
| Salt Lake City, Utah | 17.5 | 5 | 22.5 |
| Albuquerque, N. M. | 14 | *6.5 | 20.5 |

*Includes city tax of 0.5c.

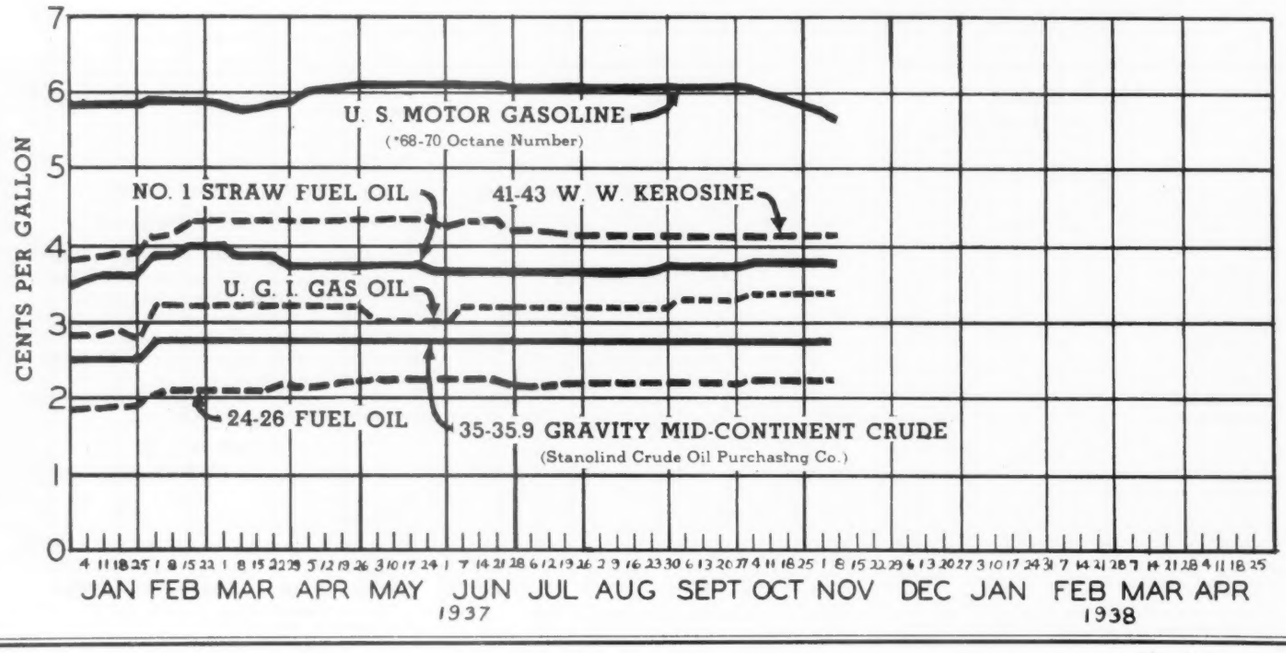
S. O. CALIFORNIA

| | | | |
|---|---|---|---|
| Phoenix, Ariz. | 17 | 6 | 23 |
| Los Angeles, Cal. | 15 | 4 | 19 |
| San Francisco, Cal. | 15.5 | 4 | 19.5 |
| Reno, Nev. | 17 | 5 | 22 |
| Portland, Ore. | 16 | 6 | 22 |
| Seattle, Wash. | 16 | 6 | 22 |
| Spokane, Wash. | 19 | 6 | 25 |

*Note*: For discounts, etc., see note under Standard and Flight gasoline above.

# Barometer of Mid-Continent Refinery Market

*Chartered Course of Prices of Crude and Principal Refined Products, Week by Week*




*Octane number revised to 70-72, L-3 Test Method, Sept. 20, 1937, in line with general trade practice.

# TANK WAGON MARKETS

*Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Nov. 8, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections*

## Naphtha (In Tank Wagon)

**S. O. NEW JERSEY**

| Posted Tank Wagon Prices | Mineral Spirits | V.M.&P. |
|---|---|---|
| Newark, N. J. | 12.5 | 15.5 |
| Baltimore, Md. | 15.5 | .... |
| Washington, D. C. | 15 | .... |

Discounts: Buyers taking following quantities, at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

**SOCONY-VACUUM OIL CO.**

| | | |
|---|---|---|
| Buffalo, N. Y. | 13 | 14 |
| New York City | 10.5 | 11.5 |
| Rochester, N. Y. | 13 | 15 |
| Syracuse, N. Y. | 14 | 15 |
| Boston, Mass. | 13.5 | 14 |
| Bridgeport, Conn. | 12.5 | 14 |
| Hartford, Conn. | 12 | 13.5 |
| Providence, R. I. | 13.5 | 14.5 |

**ATLANTIC REFINING CO.**

| | | |
|---|---|---|
| Philadelphia, Pa. | 11.5 | 12.5 |
| Lancaster, Pa. | 13 | 14 |
| Pittsburgh, Pa. | 12.5 | 14.5 |

*Note*: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

**S. O. OHIO**

| | S.R. Solvent | V.M.&P. Naphtha |
|---|---|---|
| Thru Ohio | 13.25 | 13.75 |

*Note*: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

**S. O. INDIANA**

*(Prices include state and federal taxes)*

| | Oleum Spirits | V.M.&P. Naphtha | Stanisol |
|---|---|---|---|
| Chicago, Ill. | 15.8 | 16.1 | 15.5 |
| Detroit, Mich. | 19.2 | 18.2 | 19.3 |
| Kansas City, Mo. | 14.4 | 15.4 | 14.4 |
| St. Louis, Mo. | 14.7 | 15.7 | 14.6 |
| Milwaukee, Wis. | 19.3 | 20.3 | 19.3 |
| Minneapolis, Minn. | 19.4 | 20.4 | 18 |

*Note*: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

## *Naphtha (In Tank Cars)*

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

| | V.M.&P. Naphtha | Solvent |
|---|---|---|
| Baltimore | 11 | 10 |
| New York Harbor | 10.5–11 | 9.5 |
| Philadelphia district | 11 | 10 |
| Boston | 10.5 | 10 |
| Providence | 10.5 | 10 |
| Ohio points, delivered | 9.75 | *9.25 |

*This is on S.R. solvent.

*Note*: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

## Latest Changes

**From Nov. 2 to Nov. 8 inclusive. Dates and amounts of changes shown. See table for full current prices.**

*Socony-Vacuum Oil—Socony Mobilgas:*
For 0.5c cut, Nov. 2, see page 52, Nov. 3rd issue except New York City was included in cut.

*S. O. Ohio—X-70 and Renown:*
Cut 0.5c, thru Ohio Nov. 4, except Pickaway county unchanged. Exceptions on Renown; Hocking county cut 1c.

*Kerosine:*
Cut 0.5c thru Ohio, except depressed areas and Washington county unchanged and Geauga county cut 1c.

*S. O. Kentucky—Crown Gasoline:*
Cut 0.5c thru Kentucky, Nov. 4.
Kyso cut in some areas. No further details available at press time.

*S. O. Indiana—Red Crown and Stanolind:*
Cut 0.3c thru territory, Nov. 3.
Exception on Red Crown, dealer price unchanged at St. Joseph.
Dealer cut 0.2c, Wichita, Nov. 2; cut 0.3c, Nov. 3.
Exceptions on Stanolind: dealer prices were unchanged at Chicago, Decatur, Quincy, Green Bay, Indianapolis, Evansville, Milwaukee, Des Moines, St. Louis and St. Joseph.
Dealer cut 1c, Wichita, Nov. 2; unchanged Nov. 3.

*S. O. Nebraska—Red Crown:*
Normal prices cut 0.3c thru territory, Nov. 3; where prices were below normal, adjusted with new normal; prices sub-normal 0.3c or more, were unchanged. Unchanged were McCook and dealer price at Scottsbluff.

## Corrections

**Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes.**

*S. O. Ohio—Kerosine:*
Price in Geauga county has been on statewide level of 13.5c t. w., thru year; except for four townships, where price has been 12.5c. Thru error, this county was listed in the price table at 12.5c. On Nov. 4, it was cut 1c, to 12.5c.

*S. O. Indiana—Stanolind:*
Decatur, dealer up 1c, Oct. 26.

# SEABOARD MARKETS, EXPORT AND COASTWISE

*All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.*

## Eastern Domestic

(Inter-refinery and export prices not included.)

### MOTOR GASOLINE

| Prices Effective | Nov. 8 | |
|---|---|---|
| District: | *60-64 Oct. | *65 Oct. & Above |
| N. Y. harbor | 7.25 | 7.25 – 7.50 |
| †N. Y. harbor | 7.00 | 7.00 – 7.25 |
| Philadelphia | 7.25 | 7.50 |
| Baltimore | 7.25 – 7.50 | 7.50 – 7.75 |
| Norfolk | 7.25 – 7.50 | 7.50 – 7.75 |
| Wilmington, N. C. | 7.25 – 7.50 | 7.50 – 7.75 |
| Charleston, S. C. | 7.25 – 7.50 | 7.50 – 7.75 |
| Savannah | 7.25 | 7.50 |
| Jacksonville | 7.25 | 7.50 |
| Portland | 7.75 | 8.00 |
| Boston | 7.00 – 7.25 | 7.25 – 7.50 |
| Providence | 7.25 | 7.25 – 7.50 |

*Prices are nominal. †Barge lots.

### WATER WHITE KEROSINE

| District: | | | |
|---|---|---|---|
| N. Y. harbor | 6.25–6.30 | Charleston, S. C. | 6.25 |
| *N. Y. harbor | 6.125–6.18 | Savannah | 5.75 |
| Philadelphia | 6.25 | Jacksonville | 5.75 |
| Baltimore | 6.25 | Portland | 6.75 |
| Norfolk | 6.25 | Boston | 6.40 |
| Wilmington, N. C. | 6.25 | Providence | 6.40 |

*Barge lots.

### †FUEL OILS

| | N. Y. harb. | N. Y. harb. barges |
|---|---|---|
| No. 1 | 6.25 – 6.30 | 6.125– 6.18 |
| Nos. 2-3 | 5.25 | 5.125 |
| No. 4 | 5.25 | 5.00 – 5.125 |
| No. 5 | *$1.45 –$1.55 | ..... |
| No. 6 | *$1.25 | ..... |

| | Phila. dist. | Balt. dist. |
|---|---|---|
| No. 1 | 6.25 | 6.25 |
| Nos. 2-3 | 5.25 | 5.25 |
| No. 4 | 4.75 – 5.25 | 5.25 |
| No. 5 | *$1.45–$1.475 | *$1.45–$1.55 |
| No. 6 | *$1.25 | *$1.25 |

| | Bost. dist. | Prov. dist. |
|---|---|---|
| No. 1 | 6.40 | 6.40 |
| Nos. 2-3 | 5.40 | 5.40 |
| No. 4 | 5.40 | 5.40 |
| No. 5 | *$1.45–$1.55 | ..... |
| No. 6 | *$1.25 | ..... |

†Fuel oils meet specifications of U. S. Commercial Standards CS12-35

*Correction: This price in effect Nov. 1st, instead of prices published on page 53, Nov. 3rd issue.

| District: | †Bunker C Fuel | †Diesel Oil |
|---|---|---|
| N. Y. harbor | ***$1.25 | **$2.20 |
| Philadelphia | ***$1.25 | ***$2.10–2.20 |
| Baltimore | ***$1.25 | **$2.20 |
| Norfolk | *$1.25 | $2.20 |
| Charleston | $1.20 | $2.20 |
| Savannah | *$1.20 | $2.20 |
| Jacksonville | *$1.20 | $2.20 |
| Tampa | *$1.20 | $2.20 |
| Portland | $1.35 | $2.35 |
| Boston | ***$1.25 | **$2.25 |
| Providence | $1.25 | $2.25 |

†In ships' bunkers.
*For barging add 5c per bbl.
**For barging add 6.5c to 7.5c per bbl.
***For barging add 5c to 6c per bbl.

| | Gas Oil 28-34 Gravity | Diesel Oil Shore Plants |
|---|---|---|
| N. Y. harbor | 5.25 | 5.25 |
| Philadelphia dist. | 5.00 | .... |
| Baltimore dist. | 5.25 | .... |
| Norfolk dist. | 5.25 | .... |
| Savannah dist. | .... | 5.25 |
| Jacksonville dist. | .... | 5.25 |

## Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| U. S. Motor, under 65 oct. | 6.00 – 6.125 | 6.00 – 6.125 |
| 400 e.p. blend 65 oct. & above | 6.125– 6.375 | 6.125– 6.375 |
| *38-40 w.w. kerosine | 4.75 – 5.00 | 4.75 – 5.00 |
| 41-43 w.w. kerosine | 5.00 – 5.50 | 5.00 – 5.50 |
| 44 w.w. kerosine | 5.50 – 5.75 | 5.50 – 5.75 |

*150 fire point.

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| *In Cargo lots, per bbl.* | | |
| Diesel fuel, 24° & above | $1.45 –$1.50 | $1.45 –$1.50 |
| Diesel fuel, under 24° | $1.40 –$1.45 | $1.40 –$1.45 |
| *30-34 diesel (gas oil) | $1.55 –$1.65 | $1.55 –$1.65 |
| †Grade C fuel oil | $0.90 | $0.90 |

*Note:* For San Francisco cargo prices, add 5c per bbl. to above cargo prices.

*In Ships' Bunkers, or deep tank lots,* per bbl.:

| | | |
|---|---|---|
| *Diesel fuel oil | $1.625–$1.65 | $1.625–$1.65 |
| †Grade C fuel oil | $1.075–$1.10 | $1.075–$1.10 |

*Pacific specification 200. †Pacific specification 400.

*Cased Goods:* (Per case)

| | | |
|---|---|---|
| U. S. Motor | $1.45 –$1.575 | $1.45 –$1.575 |
| 400 e.p. blend, 65 oct. & above | $1.55 –$1.675 | $1.55 –$1.675 |
| *40-43 w.w. kerosine | $1.25 –$1.325 | $1.25 –$1.325 |
| Kerosine, p.w. | $1.20 –$1.30 | $1.20 –$1.30 |

*150 fire point.

## New York Export

(Prices in cents per gal. in bbls. F.a.s. New York)

### CYLINDER OILS (Pennsylvania Products)

| | | |
|---|---|---|
| *Bright stock:* | | |
| Light, 25 p.t. | 23.50 –24.00 | 23.50 –24.00 |
| Dark, 25 p.t. | 23.00 –23.50 | 23.00 –23.50 |
| *Neutral oil:* | | |
| 200 3 color, 25 p.t. | 30.00 –30.50 | 30.00 –30.50 |
| 150 3 color, 25 p.t. | 25.50 –26.00 | 25.50 –26.00 |
| 600 Warren E filtered | 21.50 –22.00 | 21.50 –22.00 |
| 600 s.r., unfiltered | 16.50 –17.00 | 16.50 –17.00 |
| 650 s.r., unfiltered | 20.00 –20.50 | 21.00 –21.50 |
| 600 fl., s.r. | 21.50 –22.00 | 21.50 –22.00 |
| 630 fl., s.r. | 24.50 –25.00 | 25.50 –26.00 |

## Wax, Domestic *and* Export

(Prices in cents per lb. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale, solid and fully refined, slabs in bags.)

| Prices Effective | Nov. 8 | |
|---|---|---|
| | New York | |
| | Domestic | Export |
| 124-6 Y.C. scale | 2.80 – 2.85 | 2.80 – 2.85 |
| 122-4 W.C. scale | 2.85 – 2.95 | 2.85 – 2.95 |
| 124-6 W.C. scale | 2.85 – 2.95 | 2.85 – 2.95 |
| 123-5 Fully rfd. | 4.45 | 4.125– 4.375 |
| 125-7 Fully rfd. | 4.55 | 4.25 – 4.375 |
| 128-30 Fully rfd. | 4.80 | 4.50 – 4.625 |
| 130-2 Fully rfd. | 4.95 | 4.75 – 5.00 |
| 133-5 Fully rfd. | †5.35 | 5.25 – 5.375 |
| 135-7 Fully rfd. | †5.60 | 5.50 – 5.75 |
| | New Orleans | |
| | Domestic | Export |
| 124-6 Y.C. scale | 2.80 – 2.85 | 2.80 – 2.85 |
| 122-4 W.C. scale | 2.90 – 2.95 | 2.90 – 2.95 |
| 124-6 W.C. scale | 2.90 – 2.95 | 2.90 – 2.95 |
| 123-5 Fully rfd. | 4.45 | 4.125– 4.375 |
| 125-7 Fully rfd. | 4.55 | 4.25 – 4.375 |
| 128-30 Fully rfd. | 4.80 | 4.50 – 4.625 |
| 130-2 Fully rfd. | 4.95 | 4.75 – 5.00 |
| 133-5 Fully rfd. | †5.35 | 5.25 – 5.375 |

†Shipment either in bags or in bulk.

## Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 bbls. or more, unless otherwise noted.)

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **For Domestic shipment:** | | |
| **MOTOR GASOLINE** | | |
| 59 oct. & below | *5.75 – 5.875 | *5.75 – 5.875 |
| 60-64 oct. number | *5.875– 6.00 | *5.875– 6.00 |
| 65 oct. & above | 6.125– 6.25 | 6.125– 6.25 |
| **FUEL OILS** | | |
| No. 1 | 5.25 – 5.375 | 5.25 – 5.375 |
| No. 2 | 4.50 – 4.625 | 4.50 – 4.625 |
| No. 4 | 4.375– 4.50 | 4.375– 4.50 |
| **KEROSINE** | | |
| 41-43 w.w. | 5.25 – 5.375 | 5.25 – 5.375 |
| **For Export Shipment:** | | |
| **GASOLINE** | | |
| U. S. Motor | 5.75 – 5.875 | 5.75 – 5.875 |
| 60-62, 400 e.p. | 5.875– 6.00 | 5.875– 6.00 |
| 61-63, 390 e.p. | 5.875– 6.00 | 5.875– 6.00 |
| 64-66, 375 e.p. | 6.00 – 6.125 | 6.00 – 6.125 |

*Nominal.

| Prices Effective | Nov. 8 | Nov. 1 |
|---|---|---|
| **KEROSINE** | | |
| 44 w.w. | *5.625 | *5.625 |
| 41-43 w.w. | 5.25 – 5.375 | 5.25 – 5.375 |
| 41-43 p.w. | 5.125– 5.25 | 5.125– 5.25 |
| **GAS AND BUNKER OILS** | | |
| **For Domestic and/or Export Shipment** | | |
| ‡26-30 translucent gas oil | 4.375– 4.50 | 4.375– 4.50 |
| ‡30 plus translucent gas oil | 4.50 – 4.625 | 4.50 – 4.625 |
| ‡30 plus transparent gas oil | 4.50 – 4.625 | 4.50 – 4.625 |
| Diesel Oil Ship's bkrs. | †$1.90 | †$1.90 |
| Grade C bunker oil, for ship's bunkers | †$0.95 | *†$0.95 |
| Grade C bunker oil, in cargoes | $0.85 | $0.85 |

‡Less than ½ of 1% sulphur. †Barging 5c bbl. additional at some Gulf ports.

*Correction: This price correct for Nov. 1.

### MEXICAN CRUDE AND BUNKER OILS

(F.o.b. Steamer, Tampico)

| | | |
|---|---|---|
| Heavy Panuco crude, taxes to be paid | *$0.95 | *$0.96 |
| Grade C bunker oil, ship's bunkers, taxes paid | $1.00 | $1.05 |

### MID-CONTINENT LUBRICATING OILS

(Prices in cents per gal. in bbls. f.a.s. Gulf oil terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)

| | | |
|---|---|---|
| 190-200 vis. D 210 brt. stock | 25.50 | 25.50 |
| 150-160 vis. D 210 brt. stock: | | |
| 0-10 p.p. | 22.50 | 22.50 |
| 10-25 p.p. | 21.50 | 21.50 |
| 25-40 p.p. | 21.50 | 21.50 |
| 150-160 vis. E 210 brt. stock | 21.50 | 21.50 |
| 120 vis. D 210 brt. stock | 20.50 | 20.50 |
| 180 vis. No. 3 color neutral: | | |
| 0-10 p.p. | 16.50 | 16.50 |
| 15-30 p.p. | 16.00 | 16.00 |
| 200 vis. No. 3 color neutral: | | |
| 0-10 p.p. | 17.00 | 17.00 |
| 15-30 p.p. | 16.50 | 16.50 |
| 600 s.r. olive green | 12.50 | 12.50 |
| 600 s.r. dark green | 10.50 | 10.50 |
| 631 s.r. | 20.50 | 20.50 |

### SOUTH TEXAS LUBRICATING OILS

(Vis. at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment.)

| | | | |
|---|---|---|---|
| *Unfiltered Pale Oils:* | | | |
| Vis. | Color | | |
| 100 | No. 3 | 5.50 – 5.75 | 5.50 – 5.75 |
| 200 | No. 3 | 7.25 – 7.50 | 7.25 – 7.50 |
| 300 | No. 3 | 7.75 – 8.00 | 7.75 – 8.00 |
| 500 | No. 3½ | 8.75 – 9.00 | 8.75 – 9.00 |
| 750 | No. 4 | 9.25 – 9.50 | 9.25 – 9.50 |
| 1200 | No. 4 | 9.75 –10.00 | 9.75 –10.00 |
| 2000 | No. 4 | 10.25 –10.50 | 10.25 –10.50 |
| *Red Oils:* | | | |
| Vis. | Color | | |
| 100 | No. 5-6 | 5.50 – 5.75 | 5.50 – 5.75 |
| 200 | No. 5-6 | 7.25 – 7.50 | 7.25 – 7.50 |
| 300 | No. 5-6 | 7.75 – 8.00 | 7.75 – 8.00 |
| 500 | No. 5-6 | 8.75 – 9.00 | 8.75 – 9.00 |
| 750 | No. 5-6 | 9.25 – 9.50 | 9.25 – 9.50 |
| 1200 | No. 5-6 | 9.75 –10.00 | 9.75 –10.00 |
| 2000 | No. 5-6 | 10.25 –10.50 | 10.25 –10.50 |

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

## Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 lbs., British sterling; to U. S. ports in cents per bbl.)

Rates Effective Nov. 8

| | Crude &/or Fuel | | Refined Oil &/or Spirits | |
|---|---|---|---|---|
| | Last Paid | Owners Ask | Last Paid | Owners Ask |
| Gulf-U.K./Cont.‡ | 20/ | 21/-22/ | 24/ | 22/3-23/ |
| Aruba-U.K./Cont.‡ | 17/6 | 18/-20/ | 19/ | 20/-21/ |
| Gulf-N. Atlantic** (not E. of N. Y.): | | | | |
| Hvy. Crude & Fuel, (10 to 19.9 gravity) | 29c | 29c | .... | .... |
| Light Crude, (30 Grav. or Lighter) | 25c | 26c | .... | .... |
| Gasoline | .... | .... | 26.5c | 27c |
| Kerosine | .... | .... | .... | 28c |
| Light Fuel | .... | .... | 27.5c | 29c |

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

‡Continental ports in range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate; Tampico 2c to 3c per bbl. additional.

# CRUDE OIL MARKETS

*Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given*

## EASTERN FIELDS

***Posted by Joseph Seep Purchasing Agency***

(Effective Oct. 12, 1937, except Corning Sept. 2, 1937)

Penna Grade Oil in Southwest Penna. Pipe Lines.....$2.05
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$2.00
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.85
Corning Oil in Buckeye Pipe Lines (Ohio)...$1.27

***Posted by Other Companies***

Tide Water Pipe Co., Ltd.
Bradford-Allegany district (Penna. and N. Y.) (Effective Oct. 12, 1937).....$2.35
*The Pennzoil Co.: (Effective Oct. 12, 1937)
Penna. Grade Oil in National Transit Lines*$2.35
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.):
(Effective Jan. 28, 1937)
Big Sandy River.....$1.42
Kentucky River.....$1.50

*The Pennzoil Co. posts $2.35 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.30 per bbl. at well.

## MICHIGAN

***Posted by Pure Oil Co.***

Midland, Midland County (July 23, 1937)...$1.27

***Posted by Simrall Pipe Line Corp.***

(Effective July 22, 1937)
West Branch, Arenac, and equal grades.....$1.09
(Effective July 23, 1937)
Beaverton, Crystal, Greendale, Porter and equal grades.....$1.27
Buckeye.....$1.245
(Effective July 1, 1937)
Billings and Tobacco.....$1.395

## CENTRAL STATES FIELDS

***Posted by Ohio Oil Co.***

(Effective Jan. 28, 1937)

Illinois, Princeton.....$1.35
Lima.....$1.25
Owensboro (Western Ky.).....$1.40

***Posted by Stoll Oil Refining Co.***

(Effective Feb. 1, 1937)

Stoll Pipe Line Oil (Ky.).....$1.40

## CANADIAN FIELDS

***Posted by Imperial Oil Limited***

*Western Ontario*

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

*Alberta—Turner Valley*

(Prices f.o.b. field tankage)

(Effective Sept. 1, 1937)

Clear Naphtha, 65 grav. & above.....$2.36

Crude Oil & Discolored Naphtha

| | | | |
|---|---|---|---|
| 40-40.9° | $1.36 | 53-53.9 | $1.62 |
| 41-41.9 | 1.38 | 54-54.9 | 1.64 |
| 42-42.9 | 1.40 | 55-55.9 | 1.66 |
| 43-43.9 | 1.42 | 56-56.9 | 1.68 |
| 44-44.9 | 1.44 | 57-57.9 | 1.70 |
| 45-45.9 | 1.46 | 58-58.9 | 1.72 |
| 46-46.9 | 1.48 | 59-59.9 | 1.74 |
| 47-47.9 | 1.50 | 60-60.9 | 1.76 |
| 48-48.9 | 1.52 | 61-61.9 | 1.78 |
| 49-49.9 | 1.54 | 62-62.9 | 1.80 |
| 50-50.9 | 1.56 | 63-63.9 | 1.82 |
| 51-51.9 | 1.58 | 64-64.9 | 1.84 |
| 52-52.9 | 1.60 | 65° & higher, for discolored naphtha only | 2.36 |

Note: Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

## MID-CONTINENT

***Posted by Stanolind Crude Oil Purchasing Co., Jan. 28, 1937***

| | (In Oklahoma-*Kansas) | (In North-North Central Texas) |
|---|---|---|
| Below 29 | $1.06 | $0.96 |
| 29-29.9 | 1.08 | 0.98 |
| 30-30.9 | 1.10 | 1.00 |
| 31-31.9 | 1.12 | 1.02 |
| 32-32.9 | 1.14 | 1.04 |
| 33-33.9 | 1.16 | 1.06 |
| 34-34.9 | 1.18 | 1.08 |
| 35-35.9 | 1.20 | 1.10 |
| 36-36.9 | 1.22 | 1.12 |
| 37-37.9 | 1.24 | 1.14 |
| 38-38.9 | 1.26 | 1.16 |
| 39-39.9 | 1.28 | 1.18 |
| 40 & above | 1.30 | 1.20 |

Above Stanolind prices met as follows:

Jan. 28, Continental Oil Co. met in Okla., Kans., and North Texas. Sinclair-Prairie met in North Texas and North Central Texas, Jan. 28, Stanolind's North Texas schedule. Same date, The Texas Co. met in North-North Central Texas.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 100% tank tables are used effective Oct. 1, 1937, volume corrected to 60° F., and deduction for full b.s. & w. content.

*Effective Aug. 1, 1937, for Otis-Albert pools Rush-Barton counties, Kans., 13c less.

***Posted by Carter Oil Co.***

*In Oklahoma*

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 25 | $0.98 | 33-33.9 | $1.16 |
| 25-25.9 | 1.00 | 34-34.9 | 1.18 |
| 26-26.9 | 1.02 | 35-35.9 | 1.20 |
| 27-27.9 | 1.04 | 36-36.9 | 1.22 |
| 28-28.9 | 1.06 | 37-37.9 | 1.24 |
| 29-29.9 | 1.08 | 38-38.9 | 1.26 |
| 30-30.9 | 1.10 | 39-39.9 | 1.28 |
| 31-31.9 | 1.12 | 40 and above | 1.30 |
| 32-32.9 | 1.14 | | |

Above Carter schedule met Jan. 28 by the following companies: Sinclair-Prairie, Shell and Barnsdall in Oklahoma-Kansas; Skelly Oil in Kansas; Tide Water in Oklahoma; Pure Oil in Oklahoma-Kansas, beginning with below 24 at $0.98 and ending with 40 & above at $1.30.

***Posted by Magnolia Petroleum Co.***

(Effective Jan. 28, 1937)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.98 and ending with 40 & above, at $1.30.

In Texas: North and North Central, including Burkburnett, Archer, Henrietta, Electra, Comanche and Olden, same gravity and price schedule as Stanolind in North Texas, which see under Stanolind, beginning with below 29 at $0.96 and ending with 40 and above, at $1.20.

**Beaumont, Tex.**

(Effective Oct. 1, 1937)

| | | | |
|---|---|---|---|
| Below 21° | $0.95 | 27-27.9 | $1.15 |
| 21-21.9 | 0.98 | 28-28.9 | 1.17 |
| 22-22.9 | 1.01 | 29-29.9 | 1.19 |
| 23-23.9 | 1.04 | 30-30.9 | 1.21 |
| 24-24.9 | 1.07 | 31-31.9 | 1.23 |
| 25-25.9 | 1.10 | 32-32.9 | 1.25 |
| 26-26.9 | 1.13 | 33-33.9 | 1.27 |
| | | 34 & above | 1.29 |

## TEXAS FIELDS

***Posted by Humble Oil & Refining Co.***

(*West Central Texas)

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 29 | $0.96 | 35-35.9 | $1.10 |
| 29-29.9 | 0.98 | 36-36.9 | 1.12 |
| 30-30.9 | 1.00 | 37-37.9 | 1.14 |
| 31-31.9 | 1.02 | 38-38.9 | 1.16 |
| 32-32.9 | 1.04 | 39-39.9 | 1.18 |
| 33-33.9 | 1.06 | 40 and above | 1.20 |
| 34-34.9 | 1.08 | | |

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., effective Jan. 28, posts Humble's above schedule on Fisher county crude, plus these five lower grades, beginning with below 25 gravity at $0.88; 25-25.9, $0.90; 26-26.9, $0.92; 27-27.9, $0.94, and 28-28.9, $0.96; rest of schedule same as Humble's in West Central Texas.

*Note*: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

*(*East Central Texas*)

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 29 | $1.03 | 35-35.9 | $1.17 |
| 29-29.9 | 1.05 | 36-36.9 | 1.19 |
| 30-30.9 | 1.07 | 37-37.9 | 1.21 |
| 31-31.9 | 1.09 | 38-38.9 | 1.23 |
| 32-32.9 | 1.11 | 39-39.9 | 1.25 |
| 33-33.9 | 1.13 | 40 and above | 1.27 |
| 34-34.9 | 1.15 | | |

*Including Anderson, Cherokee, Limestone, Navarro counties.

Same date, Sinclair-Prairie met in Mexia Humble's above schedule.

## PANHANDLE TEXAS

***Posted by Humble Oil & Refining Co.***

(Effective Jan. 28, 1937)

| | Gray County | Carson-Hutchinson |
|---|---|---|
| Below 35 | $0.96 | $0.91 |
| 35-35.9 | 0.98 | 0.93 |
| 36-36.9 | 1.00 | 0.95 |
| 37-37.9 | 1.02 | 0.97 |
| 38-38.9 | 1.04 | 0.99 |
| 39-39.9 | 1.06 | 1.01 |
| 40 & above | 1.08 | 1.03 |

Jan. 28, above prices met by Sinclair-Prairie and Magnolia in the entire area and by Continental in Carson-Hutchinson and by Texas Co. in Panhandle Sweet, same as Humble's Gray Co. and on Panhandle Sour, same as Carson-Hutchinson.

## EAST TEXAS

(Effective May 22, 1937)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas Co., and Magnolia.....$1.35

Shell also posted on Jan. 28, in Livingston area, Polk County, Texas, $1.27.

## NORTHEAST TEXAS

**(Posted by Humble, Jan. 28, 1937)**

Talco.....$0.78

**(Posted by Magnolia, Jan. 28, 1937)**

Cass County and Panola County, Tex:
Same gravity and price schedule as S. O. Louisiana posts for Rodessa, La., which see under that company.

***(Posted by The Texas Co., Jan. 28, 1937)***

Cass County.....$1.25

## WEST TEXAS AND NEW MEXICO

***Posted by Humble Oil & Refining Co.***

(Effective Jan. 28, 1937)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

| | | | |
|---|---|---|---|
| Below 26 | $0.78 | 33-33.9 | $0.94 |
| 26-26.9 | 0.80 | 34-34.9 | 0.96 |
| 27-27.9 | 0.82 | 35-35.9 | 0.98 |
| 28-28.9 | 0.84 | 36-36.9 | 1.00 |
| 29-29.9 | 0.86 | 37-37.9 | 1.02 |
| 30-30.9 | 0.88 | 38-38.9 | 1.04 |
| 31-31.9 | 0.90 | 39-39.9 | 1.06 |
| 32-32.9 | 0.92 | 40 & above | 1.08 |
| Pecos, West Texas | | | $0.91 |

Jan. 28, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winker.

Shell Petroleum Corp., on Jan. 28, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 28, Shell posted in Yates shallow pool in Pecos county, Tex., $0.81. June 4, 1937, Shell added Ector county to West Texas postings.

Jan. 28, Stanolind Oil & Gas Co. met Humble in Hendrick field, Winkler county.

Jan. 28, Texas Co. met Humble in Ward and Winkler counties, Tex., and Lea County, N. M.

April 20, 1937, Sinclair Prairie met Humble in Ward and Winkler, Tex. and Lea, N. M., counties, except that its gravity schedule ends with 36 and above, at $1.00.

***Posted by Continental Oil Co.***

(Effective Jan. 28, 1937)

Artesia, Jackson and Maljamar pools, N. M...$0.90

## COLORADO

**(Posted by Continental Oil Co.,**

Effective Jan. 28, 1937)

Ft. Collins and Wellington

| | | | |
|---|---|---|---|
| Below 29 | $1.01 | 35-35.9 | $1.15 |
| 29-29.9 | 1.03 | 36-36.9 | 1.17 |
| 30-30.9 | 1.05 | 37-37.9 | 1.19 |
| 31-31.9 | 1.07 | 38-38.9 | 1.21 |
| 32-32.9 | 1.09 | 39-39.9 | 1.23 |
| 33-33.9 | 1.11 | 40 & above | 1.25 |
| 34-34.9 | 1.13 | | |

Cannon City and Florence, Col.....$1.10

## SOUTH AND SOUTHWEST TEXAS

***Posted by Humble Oil & Refining Co.***

(Effective Jan. 28, 1937)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski fields.....$1.09

| | | | |
|---|---|---|---|
| Pettus | $1.37 | Van Zandt | $1.10 |

(Effective Nov. 1, 1936)

| | | | |
|---|---|---|---|
| Heyser heavy | $0.90 | Placedo heavy | $0.90 |
| Heyser light | 1.15 | Taft | 0.95 |

Shell Pet. Corp. on Jan. 28, posted $1.09 in Salt Flat district, Tex.

Anahuac, Dickinson, Flour Bluff and Turtlebay

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 31 | $1.16 | 36-36.9 | $1.28 |
| 31-31.9 | 1.18 | 37-37.9 | 1.30 |
| 32-32.9 | 1.20 | 38-38.9 | 1.32 |
| 33-33.9 | 1.22 | 39-39.9 | 1.34 |
| 34-34.9 | 1.24 | 40 and above | 1.36 |
| 35-35.9 | 1.26 | | |

Jan. 28, Magnolia met Humble in Darst Creek; posted $1.00 in Luling; $1.12 in Lytton Springs; $1.27 for Cleveland, Liberty county, Tex.; $1.15 in Hardin, Liberty county, Tex.

Jan. 28, 1937, The Texas Co. met Humble in Darst Creek.

***Posted by Humble***

*Conroe, Raccoon Bend, Tomball and Satsuma*

(Deep sand crudes)

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 29 | $1.20 | 35-35.9 | $1.34 |
| 29-29.9 | 1.22 | 36-36.9 | 1.36 |
| 30-30.9 | 1.24 | 37-37.9 | 1.38 |
| 31-31.9 | 1.26 | 38-38.9 | 1.40 |
| 32-32.9 | 1.28 | 39-39.9 | 1.42 |
| 33-33.9 | 1.30 | 40 & above | 1.44 |
| 34-34.9 | 1.32 | | |

Jan. 28, Magnolia met Humble in Tomball and Texas Co. met Humble in Conroe, beginning with $35-35.9 gravity.

***Posted by Humble***

*Mirando, Heavy and Light*

(Effective July 6, 1937)

| | | | |
|---|---|---|---|
| Below 21 | $0.96 | 31-31.9 | $1.18 |
| 21-21.9 | 0.98 | 32-32.9 | 1.20 |
| 22-22.9 | 1.00 | 33-33.9 | 1.22 |
| 23-23.9 | 1.02 | 34-34.9 | 1.24 |
| 24-24.9 | 1.04 | 35-35.9 | 1.26 |
| 25-25.9 | 1.06 | 36-36.9 | 1.28 |
| 26-26.9 | 1.08 | 37-37.9 | 1.30 |
| 27-27.9 | 1.10 | 38-38.9 | 1.32 |
| 28-28.9 | 1.12 | 39-39.9 | 1.34 |
| 29-29.9 | 1.14 | 40 & above | 1.36 |
| 30-30.9 | 1.16 | | |

July 6, Magnolia posted same schedule as Humble in Mirando.

July 6, 1937, Texas Co. posted for Duval-Mirando, $0.96 for below 21, plus 2c differential, to $1.12 for 28 & above.

*(Continued on next page)*

# CRUDE OIL MARKETS

*(Continued from preceding page)*

### NORTH LOUISIANA-ARKANSAS

**Posted by Standard Oil Co. of Louisiana**

**(Effective Jan. 28, 1937)**

**(In Caddo, Homer, Haynesville, Sabine, De Soto, Sarepta, Carterville, El Dorado, Bunkie, and Miller county).**

| | | | |
|---|---|---|---|
| **Below 25** | **$0.90** | **33-33.9** | **$1.08** |
| **25-25.9** | **0.92** | **34-34.9** | 1.10 |
| **26-26.9** | **0.94** | **35-35.9** | 1.12 |
| **27-27.9** | **0.96** | **36-36.9** | 1.14 |
| **28-28.9** | **0.98** | **37-37.9** | 1.16 |
| **29-29.9** | **1.00** | **38-38.9** | 1.18 |
| **30-30.9** | **1.02** | **39-39.9** | 1.20 |
| **31-31.9** | **1.04** | **40 and above** | 1.22 |
| **32-32.9** | **1.06** | | |

**Rodessa, La.**

**(Effective Jan. 28, 1937)**

| | | | |
|---|---|---|---|
| Below 25 | $0.93 | 33-33.9 | $1.11 |
| 25-25.9 | 0.95 | 34-34.9 | 1.13 |
| 26-26.9 | 0.97 | 35-35.9 | 1.15 |
| 27-27.9 | 0.99 | 36-36.9 | 1.17 |
| 28-28.9 | 1.01 | 37-37.9 | 1.19 |
| 29-29.9 | 1.03 | 38-38.9 | 1.21 |
| 30-30.9 | 1.05 | 39-39.9 | 1.23 |
| 31-31.9 | 1.07 | 40 and above | 1.25 |
| 32-32.9 | 1.09 | | |

**Choctaw and Darrow**

Jan. 28, 1937, initial posting; same schedule as Humble posts in Mirando, Tex., which see.

Smackover, Ark. ..... $0.90
Urania, La. (La. Oil Refg. Co., Jan. 10, '36) ... 0.97
Tepetate, La. (Continental Oil, Jan. 28, '37) ... 1.24

Jan. 28, 1937, Magnolia met S. O. La.'s No. La.-Ark. gravity and price schedule in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in Eldorado and Rainbow districts, Ark.; and met S. O. La.'s Rodessa prices; and in Lockport, Iowa, Cameron Meadow, La., posted Humble's gravity and price schedule on Mirando.

Jan. 28, The Texas Co. met S. O. La. in N. La., except that its gravity schedule begins with below 27 at $0.94. It posted $1.37 for Garden Island, La., $1.24 for LaFitte, La. and $0.90 for Smackover.

### *GULF COASTAL FIELDS

***Posted by Humble Oil & Refining Co. and The Texas Co.***

| | (Effective Jan. 28, 1937) Humble | Texas | Saxet (Humble) (July 6 '37) |
|---|---|---|---|
| Below 18 | $0.95 | $0.90 | .... |
| 18-18.9 | for | 0.92 | .... |
| 19-19.9 | below | 0.94 | .... |
| 20-20.9 | 21° | 0.96 | $1.01 |
| 21-21.9 | 0.98 | 0.98 | 1.03 |
| 22-22.9 | 1.01 | 1.01 | 1.05 |
| 23-23.9 | 1.04 | 1.04 | 1.07 |
| 24-24.9 | 1.07 | 1.07 | 1.09 |
| 25-25.9 | 1.10 | 1.10 | 1.11 |
| 26-26.9 | 1.13 | 1.13 | 1.13 |
| 27-27.9 | 1.15 | 1.15 | 1.15 |
| 28-28.9 | 1.17 | 1.17 | 1.17 |
| 29-29.9 | 1.19 | 1.19 | 1.19 |
| 30-30.9 | 1.21 | 1.21 | 1.21 |
| 31-31.9 | 1.23 | 1.23 | 1.23 |
| 32-32.9 | 1.25 | 1.25 | 1.25 |
| 33-33.9 | 1.27 | 1.27 | 1.27 |
| 34-34.9 | 1.29 | 1.29 | 1.29 |
| 35-35.9 | 1.31 | for | 1.31 |
| 36-36.9 | 1.33 | oil | 1.33 |
| 37-37.9 | 1.35 | 34° | 1.35 |
| 38-38.9 | 1.37 | and | 1.37 |
| 39-39.9 | 1.39 | above. | 1.39 |
| 40 and above.. | 1.41 | .... | 1.41 |

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F

*Humble's prices apply in these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Plymouth, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light and †heavy, Sour Lake, Spindletop, Sugarland and West Columbia. †Except these grades of Refugio heavy: effective July 6, 1937: Below 20, $0.95; 20-20.9, $1.01; 21-21.9, $1.03; 22-22.9, $1.05; 23-23.9, $1.07; 24-24.9, $1.09; and 25-25.9, $1.11; rest of schedule same as other Gulf Coastal crude.

Jan. 28, Sinclair-Prairie met above Humble schedule in full.

July 6, 1937, The Texas Co. posted for Refugio, which includes Greta, Saxet and Taft: $1.01 for below 21, plus 2c differential, to $1.17 for 28 & above.

Texas Co. postings in Gulf Coastal Texas include: Arriola, Five Corners, Ganado, Humble, Liberty, Magnet, Manvel, Markham, Mauritz, Pickett Ridge, Port Neches, Sour Lake, West Columbia and Withers. In Gulf Coastal Louisiana: Bay St. Elaine, Caillou Island, Dog Lake, Four Isle, Gillis, Horseshoe Bayou, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre.

### ROCKY MOUNTAIN FIELDS

***Posted by Stanolind Oil & Gas Co.***

(Effective Jan. 28, 1937)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see under Mid-Continent crude on previous page.

| | |
|---|---|
| Greybull-Torchlight | $1.30 |
| Iles, light, Col. | 1.18 |
| Iles, heavy | 1.12 |
| Hogback, N. M. | 1.33 |
| Big Muddy | 1.23 |
| Elk Basin, light | 1.30 |
| Grass Creek, light | 1.30 |
| Frannie light | 0.82 |

(Effective Nov. 4, 1936)

| | |
|---|---|
| Grass Creek, heavy | $0.62 |
| Frannie heavy | 0.62 |
| Hamilton Dome, Wyo. | 0.57 |

Pondera, Mont., (Postings discontinued July 1, 1936, but Stanolind pays price posted by Ohio Oil for Kevin-Sunburst, less 20c per bbl.)

***Posted by Ohio Oil Co***

(Effective Jan. 28, 1937)

| | |
|---|---|
| Elk Basin, Wyo. | $1.30 |
| Grass Creek, light | 1.30 |
| Rock Creek | 1.205 |
| Lance Creek | 0.97 |
| Sunburst, Mont. | 1.20 |

***Posted by *International Refg. Co.***

Cut Bank, Mont.

(Effective Jan. 28, 1937)

| | | | |
|---|---|---|---|
| Below 35° | $1.34 | 38-38.9 | $1.42 |
| 35-35.9 | 1.36 | 39-39.9 | 1.44 |
| 36-36.9 | 1.38 | 40 and above | 1.46 |
| 37-37.9 | 1.40 | | |

*Texas Co. subsidiary.

***Posted by Continental Oil Co.***

(Effective Jan. 28, 1937)

| | |
|---|---|
| Cat Creek, Mont. | $1.40 |
| Big Muddy, Wyo. | 1.18 |
| Lance Creek, Wyo. | 0.97 |

## CALIFORNIA, *Posted by Standard Oil of California*

*All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937*

| Gravity | Signal Hill (Long Beach) El Segundo †Wilmington | Seal Beach | Alamitos Heights | Huntington Beach | Inglewood | Playa del Rey | Ollinda Bree Canon | Athens Rosecrans | Dominguez | Torrance | Richfield | Whittier East Coyote (La Habra) | Montebello | West Coyote Hills | Santa Fe Springs | ‡Newhall and others | Mountain View | Elk Hills | Buena Vista Hills **Midway-Sunset | Lakeview Area | Lost Hills | Coalinga | Wheeler Ridge |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14-14.9 | $0.80 | 0.79 | 0.74 | 0.78 | 0.79 | 0.80 | 0.76 | .... | .... | 0.80 | 0.76 | 0.76 | 0.77 | 0.78 | --- | 0.70 | .... | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | --- |
| 15-15.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | --- | .70 | .... | .70 | .70 | .70 | .70 | .70 | --- |
| 16-16.9 | .80 | .79 | .74 | .78 | .79 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | --- | .70 | -- | .70 | .70 | .70 | .70 | .70 | --- |
| 17-17.9 | .80 | .79 | .74 | .78 | .81 | .80 | .76 | .... | .... | .80 | .76 | .76 | .77 | .78 | --- | .70 | -- | .70 | .70 | .70 | .70 | .70 | --- |
| 18-18.9 | .80 | .79 | .74 | .78 | .84 | .80 | .78 | .... | .... | .82 | .76 | .76 | .77 | .78 | --- | .70 | .. | .70 | .70 | .70 | .70 | .70 | --- |
| 19-19.9 | .82 | .79 | .74 | .82 | .87 | .84 | .81 | .... | .... | .85 | .76 | .78 | .77 | .78 | --- | .70 | .70 | .74 | .74 | .74 | .74 | .71 | .70 |
| 20-20.9 | .85 | .79 | .74 | .85 | .90 | .88 | .84 | .... | .... | .88 | .78 | .82 | .77 | .80 | ... | --- | .70 | .78 | .78 | .78 | .78 | .72 | .70 |
| 21-21.9 | .88 | .79 | .74 | .89 | .93 | .93 | .88 | .... | .... | .91 | .80 | .85 | .77 | .84 | .78 | --- | .78 | .82 | .82 | .82 | .82 | .74 | .70 |
| 22-22.9 | .92 | .82 | .74 | .92 | .96 | .98 | .92 | .. | ... | .93 | .84 | .89 | .79 | .88 | .78 | --- | .77 | .87 | .87 | .87 | .86 | .78 | .72 |
| 23-23.9 | .95 | .86 | .77 | .96 | .99 | 1.02 | .96 | .84 | .79 | .96 | .88 | .93 | .82 | .92 | .78 | --- | .80 | .92 | .92 | .92 | .90 | .82 | .76 |
| 24-24.9 | .99 | .91 | .80 | 1.00 | 1.02 | 1.06 | .99 | .88 | .81 | .99 | .91 | .96 | .85 | .96 | .82 | --- | .84 | .97 | .97 | .97 | .94 | .86 | .79 |
| 25-25.9 | 1.03 | .95 | .82 | 1.03 | 1.05 | 1.11 | 1.03 | .93 | .83 | 1.02 | .95 | .... | .89 | .99 | .86 | --- | .88 | 1.01 | 1.01 | 1.01 | .98 | .90 | .83 |
| 26-26.9 | 1.06 | 1.00 | .85 | 1.07 | 1.09 | 1.16 | 1.06 | .98 | .86 | 1.05 | .98 | --- | .92 | 1.03 | .90 | --- | .91 | 1.06 | 1.06 | 1.06 | 1.02 | .... | --- |
| 27-27.9 | 1.10 | 1.05 | .88 | 1.11 | 1.12 | .... | 1.10 | 1.03 | .88 | .... | 1.02 | -- | .96 | 1.06 | .95 | --- | .95 | 1.10 | 1.10 | 1.10 | 1.06 | .... | --- |
| 28-28.9 | 1.14 | 1.10 | .90 | 1.14 | 1.15 | .... | 1.14 | 1.07 | .90 | .... | 1.06 | .... | .99 | 1.10 | .99 | --- | .99 | 1.15 | 1.15 | 1.15 | 1.10 | .... | --- |
| 29-29.9 | 1.17 | 1.15 | .93 | 1.18 | 1.18 | .... | 1.17 | 1.12 | .93 | .... | 1.09 | .... | 1.03 | 1.14 | 1.03 | --- | 1.02 | 1.20 | 1.20 | 1.20 | 1.14 | .... | --- |
| 30-30.9 | 1.21 | 1.19 | .95 | 1.22 | 1.21 | .... | 1.21 | 1.17 | .95 | .... | .... | .... | 1.07 | 1.17 | 1.08 | --- | 1.06 | 1.25 | 1.25 | 1.25 | 1.18 | .... | --- |
| 31-31.9 | | | | | 1.24 | .... | 1.24 | 1.22 | .97 | .... | .... | .... | 1.11 | 1.21 | 1.12 | --- | 1.09 | 1.29 | 1.29 | 1.29 | | | |
| 32-32.9 | *Elwood Terrace | | | | 1.27 | .... | 1.27 | 1.27 | 1.00 | .... | .... | .... | 1.14 | 1.25 | 1.16 | --- | 1.13 | 1.34 | 1.34 | 1.34 | Kettleman Hills | | |
| 33-33.9 | .... | 1.28 | .... | .... | .... | F.O.B. Standard Pipe Line | .... | 1.32 | .... | .... | .... | .... | 1.18 | 1.28 | 1.20 | --- | 1.17 | 1.38 | 1.38 | 1.38 | .... | 1.19 | --- |
| 34-34.9 | .... | 1.32 | .... | .... | .... | | --- | 1.37 | --- | .... | .... | .... | 1.22 | 1.32 | 1.25 | --- | 1.20 | .... | .... | .... | .... | 1.23 | --- |
| 35-35.9 | .... | 1.35 | .... | .... | .... | | --- | 1.42 | .... | .... | .... | .... | 1.25 | .... | 1.29 | --- | .... | .... | .... | .... | .... | 1.27 | --- |
| 36-36.9 | .... | 1.39 | .... | .... | .... | | --- | 1.46 | .... | .... | .... | .... | 1.29 | .... | 1.33 | --- | .... | .... | .... | .... | .... | 1.31 | --- |
| 37-37.9 | .... | 1.43 | .... | .... | .... | | --- | 1.51 | .... | .... | .... | .... | 1.32 | .... | 1.37 | --- | .... | .... | .... | .... | .... | 1.35 | --- |
| 38-38.9 | .... | .... | .... | .... | .... | | --- | 1.56 | .... | .... | .... | .... | 1.36 | .... | 1.42 | --- | .... | .... | .... | .... | .... | 1.39 | --- |
| 39-39.9 | .... | .... | .... | .... | .... | | -- | 1.61 | .... | --- | --- | --- | 1.40 | .... | .... | --- | --- | --- | --- | .... | --- | 1.43 | --- |
| 40-40.9 | .... | .... | .... | .... | .... | | --- | 1.66 | --- | --- | --- | --- | 1.43 | --- | --- | --- | --- | --- | --- | .... | --- | .... | --- |

*F. o. b. ship.
‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area. †Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill.

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# Coming Meetings

**American Trucking Assn., Inc.,** Private Carriers Div., Oil Field Haulers Div., Louisville, Ky., Nov. 15 to 18.
**Oil Traders Assn. of New York,** New York, Nov. 16.
**American Institute of Chemical Engineers,** annual meeting, St. Louis, Mo., Nov. 17, 18 and 19.
**Virginia Oil Jobbers Assn.,** John Marshall Hotel, Richmond, Dec. 6.
**National Asphalt Conference,** Memphis, Tenn., week of Dec. 6.
**American Society of Mechanical Engineers,** New York, Dec. 6 to 10.
**Exposition of Chemical Industries,** Grand Central Palace, New York, N. Y. Dec. 6 to 11.
**Nebraska Petroleum Marketers, Inc.,** Omaha, Nebr., Dec. 7, 8 and 9.
**Society of Automotive Engineers,** National Production Meeting, Hotel Durant, Flint, Mich., Dec. 8, 9 and 10.
**American Chemical Society,** Division Organic Chemistry, Richmond, Va., Dec. 28, 29 and 30.

**1938**

**Independent Oil Jobbers Assn. of Okla.,** Oklahoma City, Okla., Jan. 13.
**Northwest Petroleum Assn.,** North Dakota Division, Minot, N. D., Jan. 24 and 25.
**Northwest Petroleum Assn.,** Minnesota Division, Hotel Radisson, Minneapolis, Jan. 27 and 28.
**Kentucky Petroleum Marketers Assn.,** Brown Hotel, Louisville, Ky., Feb. 7, 8 and 9.
**Ohio Petroleum Marketers Assn.,** fifteenth annual meeting, Hotel Deshler-Wallick, Columbus, Ohio, Feb. 22, 23 and 24.
**American Society for Testing Materials,** Spring Regional Meeting and Group Committee Meetings, Seneca Hotel, Rochester, N. Y., March 7 to 12.
**American Assn. of Petroleum Geologists,** 23rd annual meeting, Roosevelt Hotel, New Orleans, La., March 16 to 18.
**National Petroleum Assn.,** Cleveland, Ohio, April 13 to 15.
**Petroleum Industry Electrical Assn.,** Rice Hotel, Houston, Texas, April 13, 14 and 15.
**American Chemical Society,** Dallas, Texas, April 17 to 21.
**American Institute of Mining and Metallurgical Engineers,** Open Hearth Conference, Buffalo, N. Y., April 20, 21 and 22.
**International Petroleum Exposition,** Tulsa, Okla., May 14 and 21.

## Pa. Refinery Lubricating Oil Inventory

*(Issued as of Oct. 28 by National Petroleum Assoc.)*

| | Gallons |
|---|---|
| 1. **Raw Long Residuum** (Including all raw long residuum below, and not salable, as 600 fire) | 1,058,924 |
| 2. **600 Steam Refined** (Includes all steam refined stock commonly sold or used as 600 and as raw material for bright stocks) | 10,326,331 |
| 3. **Other Steam Refined** (Not included in 1 and 2, above) | 4,713,474 |
| 4. **Finished Dewaxed Long Res.** | 3,109,885 |
| 5. **Bright Stock** (Does not include any material reported in 4, above) | 14,648,077 |
| 6. **Viscous Neutral,** below 180 vis. but not below 142 vis. @ 100 | 8,803,547 |
| 7. **Viscous Neutral,** 180 vis. @ 100 and above | 8,076,631 |

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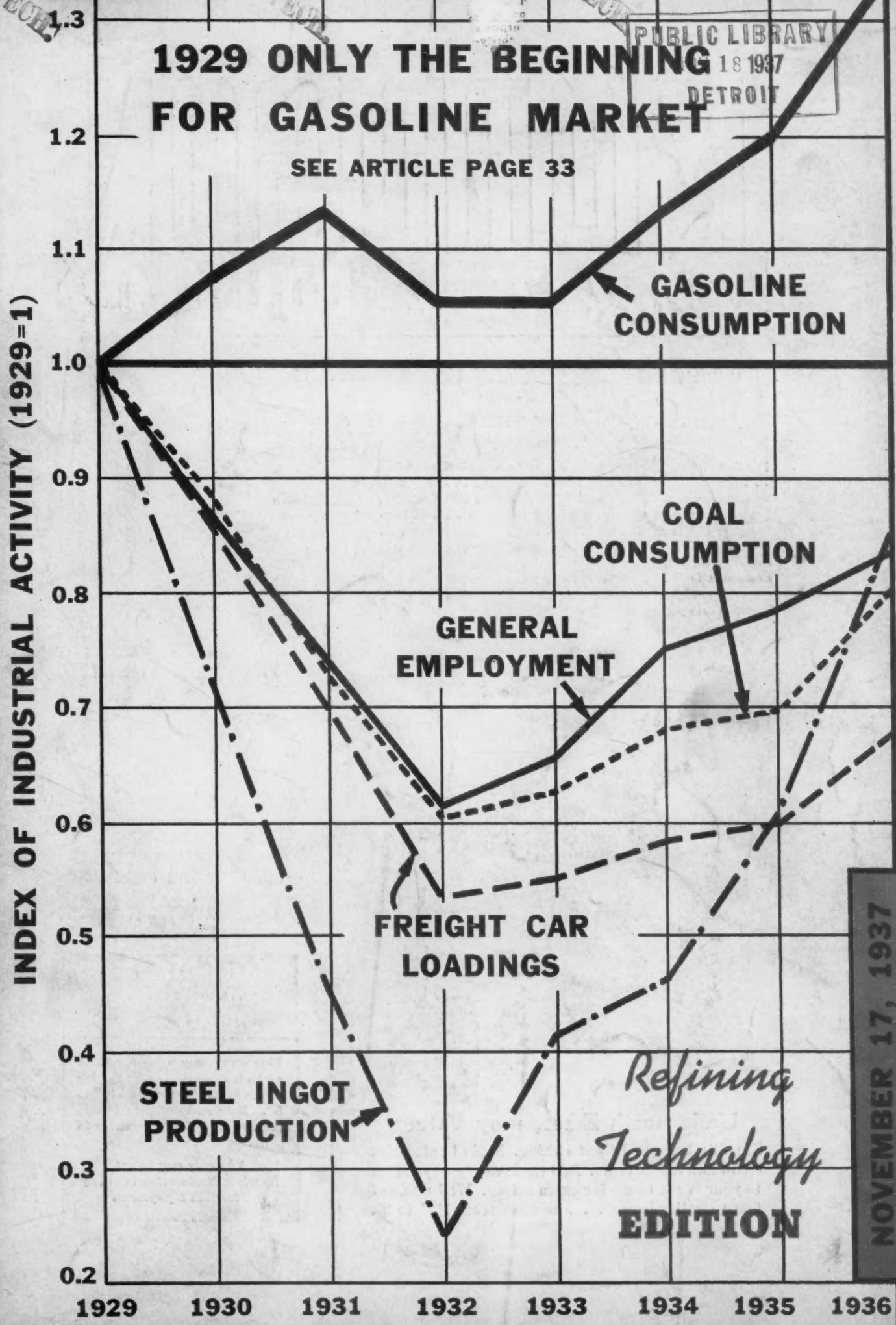


NATIONAL PETROLEUM NEWS

Refining Technology EDITION

NOVEMBER 17, 1937

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